Groundwater Monitoring Well Installation Report

for

Industrial Service Corporation

1633 S. Marsh Avenue

Kansas City, Missouri

March 8, 1996

Prepared By:

Deffenbaugh Industries, Inc.
18181 West 53rd Street
Shawnee, Kansas 66217

INDUSTRIAL
SERVICE
CORPORATION

P.O. Box 3249
Shawnee, KS 66203
(913) 631-3300
Telefax No. (913) 631-1339

March 8, 1996

Mr. Bruce Stuart, P.E.
Hazardous Waste Program
Department of Natural Resources
P.O. Box 176
Jefferson City, Missouri 65102

Dear Mr. Stuart:

Enlosed are two copies of the Groundwater Monitoring Well Installation Report. This report was prepared for wells installed during field activities in July and August of 1995 west of the Industrial Service Corporation on Marsh Avenue in Kansas City, Missouri.

If you have questions or require additional information, please contact me a (913) 962-8353.

Sincerely,

James M. Cossairt, RG
Senior Project Geologist

JMC/mc

Enclosure

cc: Ronald D. Deffenbaugh
Dan R. Swyers, P.E.
Brent J. Nickel, P.G.
Tim J. Roche

FILE

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1.0 INTRODUCTION

Industrial Service Corporation (ISC) conducted field activities at the facility located at 1633 S. Marsh, Kansas City, Missouri during July and August, 1995. Total Environmental Services and Technologies (TEST), a division of Deffenbaugh Industries, was utilized to install, develop, and sample two monitoring wells as part of these field activities.

The work plan was prepared as part of a RCRA Facilities Investigation (RFI). The design and location of these wells serve two purposes. The first is to establish the extent of contaminant migration in the down gradient direction. Secondly, well GW8A was screened across the water table and GW8B was screened immediately above the bedrock contact to investigate the possible existence of dense non-aqueous phase liquids at that zone as well as aid in the understanding of the hydrogeology at the site.

A soil sample was collected at the water table and analyzed for the constituents of Appendix IX to aid in the determination of contaminant migration associated with groundwater. Soil samples were also collected at varying depths from the bedrock contact well for aquifer parameter testing. Laboratory grain size analysis and permeameters were used to provide estimates of hydraulic conductivity.

The wells were developed using a combination of pumping and bailing. They were then sampled during the first quarterly sampling event following well development. The samples were analyzed for the constituents of 40 CFR, Part 264, Appendix IX.

2.0 MONITORING WELL INSTALLATION

2.1 Preliminary Activity

Permission was granted from the Missouri Highway and Transportation Department to access and install monitoring wells in the right-of-way of northbound I-435, south of the Truman Road exit and west of the Livers Bronze Company. Utilities were cleared in this area prior to initiating field activities.

2.2 Methodology

Both borings were installed using a Mobile B-61 drill rig utilizing hollow stem augers and logged from a continuous core split-barrel sampler. Borelogs and well construction diagrams are included in Appendix 1.

Groundwater was encountered in the boring for GW8A at a depth of 7.8 feet. The boring was advanced to a total depth of 14.5 feet. The well was constructed of 2 inch PVC schedule 40 riser pipe with a threaded connection to ten feet of .010 slotted PVC screen. The filter pack was constructed of 10 - 20 Colorado Silica sand to a depth two feet above the screened interval. One foot of bentonite seal was installed above the filter pack and the well was completed with a steel flush mount cover installed in a concrete pad.

Field screening of soil samples was completed by heated head space analysis using a model 580B OVM. The instrument was calibrated using a 100 ppm Isobutylene standard prior to analysis. Samples were collected from depths of 5, 7, 11.5, and 13.5 feet. All samples yielded readings of 2 ppm. Background readings during the

testing were also 2 ppm. A sample was prepared for laboratory analysis from a depth of 11.5 feet.

The boring for GW8B was installed approximately 15 feet south of GW8A. Continuous sampling was employed to a depth of 34.8 feet when a change in the lithology of the saturated zone caused the sampling mechanism to become stuck. Once the mechanism was successfully released, drilling was resumed to a depth of 44.6 feet. Sampling was again attempted with the same result. Drilling was resumed, but further sampling efforts were discontinued. Bedrock was encountered at 72.0 feet, but was advanced to 73.0 feet in order to confirm that the bedrock contact had been identified.

The well was constructed of threaded 2 inch PVC schedule 40 riser pipe with a threaded connection to five feet of .010 slotted PVC screen. The filter pack was constructed of 10 - 20 Colorado Silica sand tremied to a depth three feet above the screened interval. Two feet of bentonite pellets were tremmied in place above the filter pack to form the seal. Approximately 51.5 gallons of potable water was used to facilitate the placement of the sand and bentonite pellets. Bentonite grout was tremmied in place above the seal while the balance of the augers were removed from the boring. The well was completed with a steel flush mount cover installed in a concrete pad.

A discrete soil sample was collected from a depth of 22 - 24 feet for laboratory hydrologic analysis. Due to the inability to use discrete sampling equipment below the 34.8 foot depth, samples collected below this elevation were collected from the

flights of the augers and sample depths are therefore approximate. Vibration of the drill rig at a depth of approximately 67 feet and below, indicate the gravel found in cuttings probably originated from this zone directly above the bedrock contact. Cuttings from the end of the lead auger confirmed that bedrock is a dark gray shale.

2.3 Well Development

Well development was completed on August 23, 1995. Water level measurements and development summaries were recorded on field sheets and are included in Appendix 2. Monitoring well GW8A was developed by bailing a quantity in excess of five times the calculated well volume. Monitoring well GW8B was developed by pumping a quantity of water in excess of five times the well volume plus the quantity of potable water introduced during well construction. Samples were collected from the development fluids for laboratory analysis pending final disposition.

2.4 Waste Disposition

Soil cuttings from borings as well as decontamination fluids and development water were collected and containerized in metal drums. These drums were stored on-site until analytical results could confirm the waste was non-hazardous. The wastewater was mixed with process waste water and treated through the ISC facility treatment system. Soils were disposed at the Johnson County Landfill under Johnson County Industrial Solid Waste Disposal Authorization Number 95-234. A copy of this authorization and analytical results are included in Appendix 5. Copies of wastewater analytical results are included in Appendix 6.

3.0 DATA ANALYSIS

3.1 Geology

Borelogs and well construction diagrams were prepared and are included in Appendix 1. The borelog for GW8B provides additional lithologic data from the surface to contact with bedrock in the predominant down gradient direction.

This new data point was included with twelve previously identified bedrock contact points to construct a top of bedrock contour map. This map is included as Figure 1. The contours generated depict a rather uniform slope in a generally west trending direction. Gradient varies from .40 in the area of the ISC facility to .20 in the area of the Livers Bronze Company employee parking area.

Figure 2 is a cross-section drawn from west to east providing the most appropriate interpretation of lithology below the site based on current data. This section is based on section B-B originally presented on Plate 4-1 from the Groundwater Monitoring Well Installation Report dated August 7, 1992. Modifications to this section were necessary to address variations in lithologic description as well as the approximate shape of the bedrock surface.

Although the lithologic description from GW8B depicts finer grained materials than that of boring TH1, the generally coarsening downward sequence remained consistent between them. Differences were determined to be due to variations in field interpretation of grain size rather than actual variations in the lithology. The sequence grades from clay, to silty clay, to clayey silt, to sand with gravel

immediately above the bedrock contact. Laboratory results of grain size analysis from GW8B confirm that lithology is more accurately described in terms of finer grained sediments.

Based on information provided by construction of the bedrock contour map, the profile of the bedrock contact was modified. The previous interpretation presented on Plate 4-1 depicted a steep east to west slope leveling to a narrow shelf at a depth of 35 to 40 feet immediately under the ISC facility. Continuing westward from about Marsh Avenue to boring TH1, the slope increased to a depth of approximately 70 feet where it begins to level to a depth of 77 feet. The profile presented in Figure 2 depicts a relatively uniform slope that more accurately honors the data control points.

Both sections are problematic in this regard however. The original profile was influenced by MW6 which is reported to have been installed at a total depth of 30 feet and did not contact bedrock. Boring GW2 clearly encountered bedrock at a depth of 20 feet, approximately 25 feet west MW6. The original profile was drawn below the 30 foot depth in the area beneath MW6, but ignored the bedrock contact at GW2.

The profile depicted in Figure 2 honors the bedrock contact located at GW2 in preference over the data from MW6. There are no field notes, boring logs, or well construction diagrams to support the data reported from MW6. The well was removed and plugged during field activities in January 1992. The log for this boring was summarized and presented in Appendix A of the Preliminary Site Evaluation for

a Remedial Investigation dated February 19, 1990. No other record exists. The log shows a correction was made when the entry reporting shale at a depth of 15 feet was stricken, marked wrong, and replaced with gray, firm, clay to a depth of 30 feet. If shale had actually been encountered at the depth of 15 feet, the log would further support the new profile. This summary page from the appendix as well as the boring log for GW2 are included with boring logs for the new wells in Appendix 1 for reference.

3.2 Hydrogeology

Results of grain size analysis and permeameter tests reveal much lower hydraulic conductivities for lithologies at the site than previously estimated. Data was obtained from three samples collected at varying depths form boring GW8B. The geometric mean was calculated from values reported, and the average hydraulic conductivity was determined to be 1.95×10^{-8}. The data is included in Appendix 3.

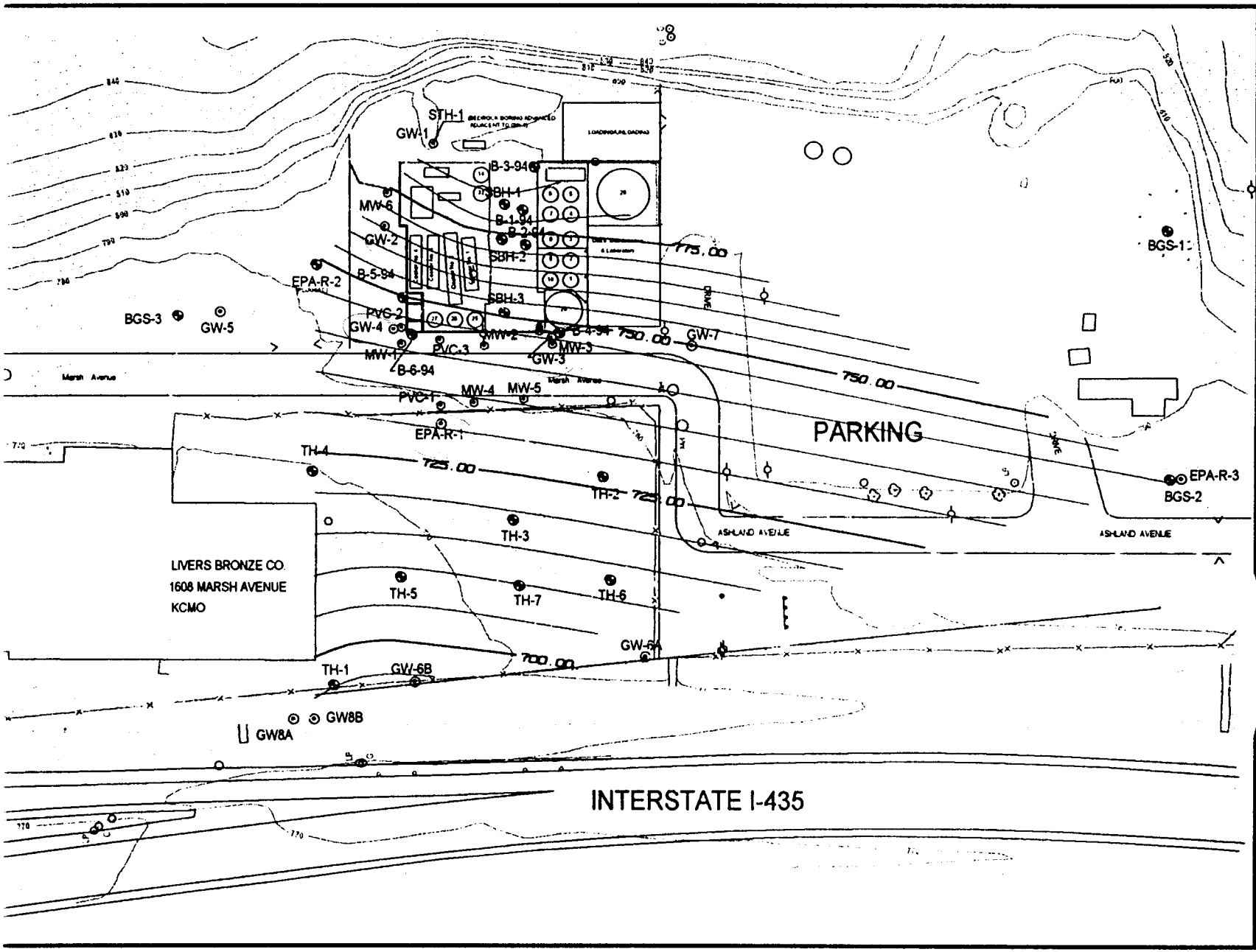
Figures 4.3 and 4.4 are water table contour maps prepared from data obtained during 3rd and 4th quarter monitoring and sampling events. These events occurred after construction and development of GW8A and GW8B. This data was previously submitted in the 1995 Annual Groundwater Monitoring Report. The maps indicate both flow direction and gradient mirror the bedrock contours from Figure 2. Flow direction is predominantly to the west and gradient is much steeper in the area of the ISC facility than the parking area to the west. Because wells at GW6B and GW8B are screened above the bedrock contact rather than at the water table, static water elevations from these points were not used to construct contours.

3.3 Analytical Results

A soil sample was collected from GW8A near the water table surface and submitted for laboratory analysis for the constituents listed in Appendix IX. Results indicated there were no detectable levels for any volatile organic compounds, semi-volatile organic compounds, pesticides, chlorinated herbicides, or PCB's analyzed. Metals detected in the sample were in the same range and did not exceed values obtained for background levels during March 1994 field activities. The laboratory data is included in Appendix 4 of this report.

Groundwater samples were collected from GW8A and GW8B during 3rd and 4th quarter sampling events and submitted for laboratory analysis for the constituents listed in Appendix IX. Results indicated no detectible levels for any of the contaminants analyzed. The laboratory data was previously submitted with quarterly reports as well as tabulated and summarized in the 1995 Annual Groundwater Monitoring Report.

FIGURES



LEGEND

- EXISTING SOIL BORING
- EXISTING WELLS
- PLUGGED WELLS

BEDROCK CONTACT ELEVATIONS

EPA-R-2	748.00
EPA-R-3	740.57
TH1	691.00
SBH-1	786.40
SBH-2	780.40
B-1	783.20
B-3	787.00
GW1	790.20
GW2	765.26
GW3	744.37
GW4	744.00
GW6B	693.72
GW8B	692.47

SCALE: 1 INCH = 100 FEET

FIGURE 1	DATE 2-27-96
	DESIGNED JMC
	DETAILED JMC
	CHECKED BN

N

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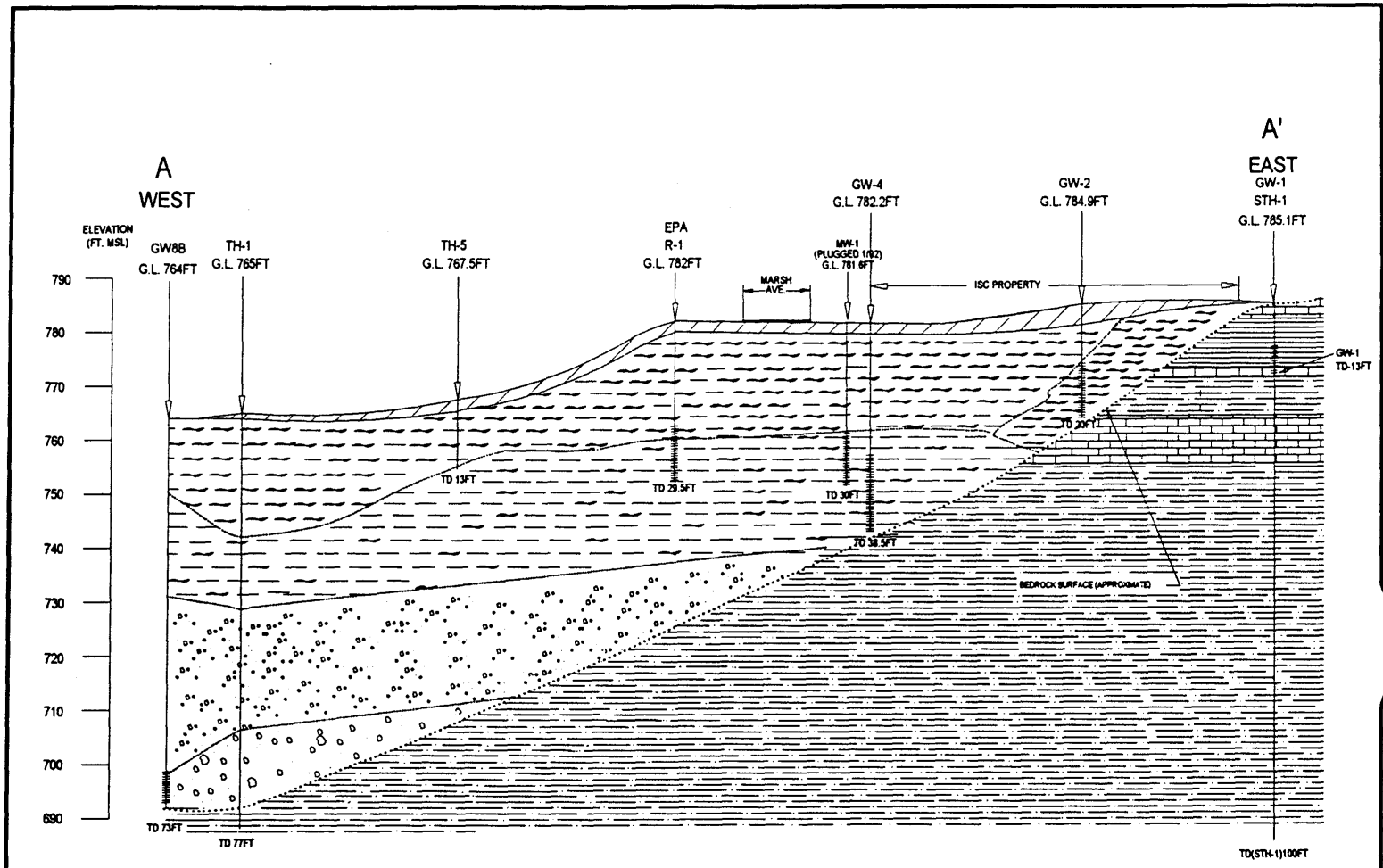
1633 MARSH AVE.
KANSAS CITY, MO 64126

BEDROCK CONTACT CONTOUR MAP



ALLUVIAL VALLEY / TERRACE LITHOLOGIES

- FILL: Gravel, Clay
- CLAY: Red,Grey w/Weathered Limestone Rubble
- CLAY: Silty, Brown to Dark Brown
- SILT & CLAY: Gray, Olive-Gray to Brown
- SILT & SAND: Fine Grained, w/Sparce Gravel
- SAND: Gravel, Boulders

BEDROCK LITHOLOGIES

- LIMESTONE: Medium Gray, Micritic, Jointed
- SHALE: Medium Gray to Black, Platy
- SHALE: Medium Gray to Light Greenish Gray, Slightly Silty, Grading Downward to Brownish Red, Silty

SCALE: 1 INCH = 50 ' VERTICAL EXAGERATION: 2X

FIGURE 2

CROSS-SECTION A-A'

DATE	2-28-96
DESIGNED	JMC
DETAILED	JMC
CHECKED	BN

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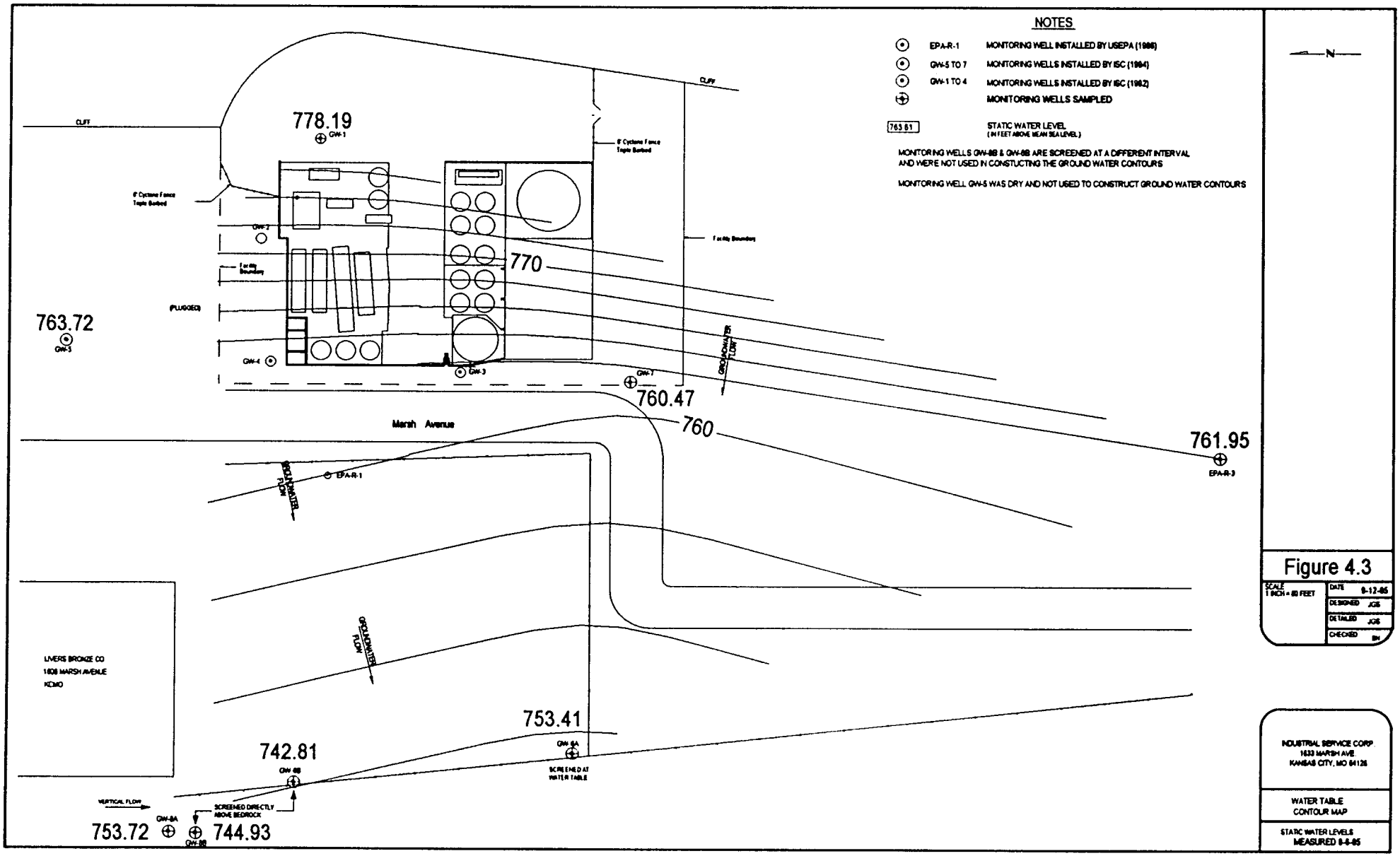
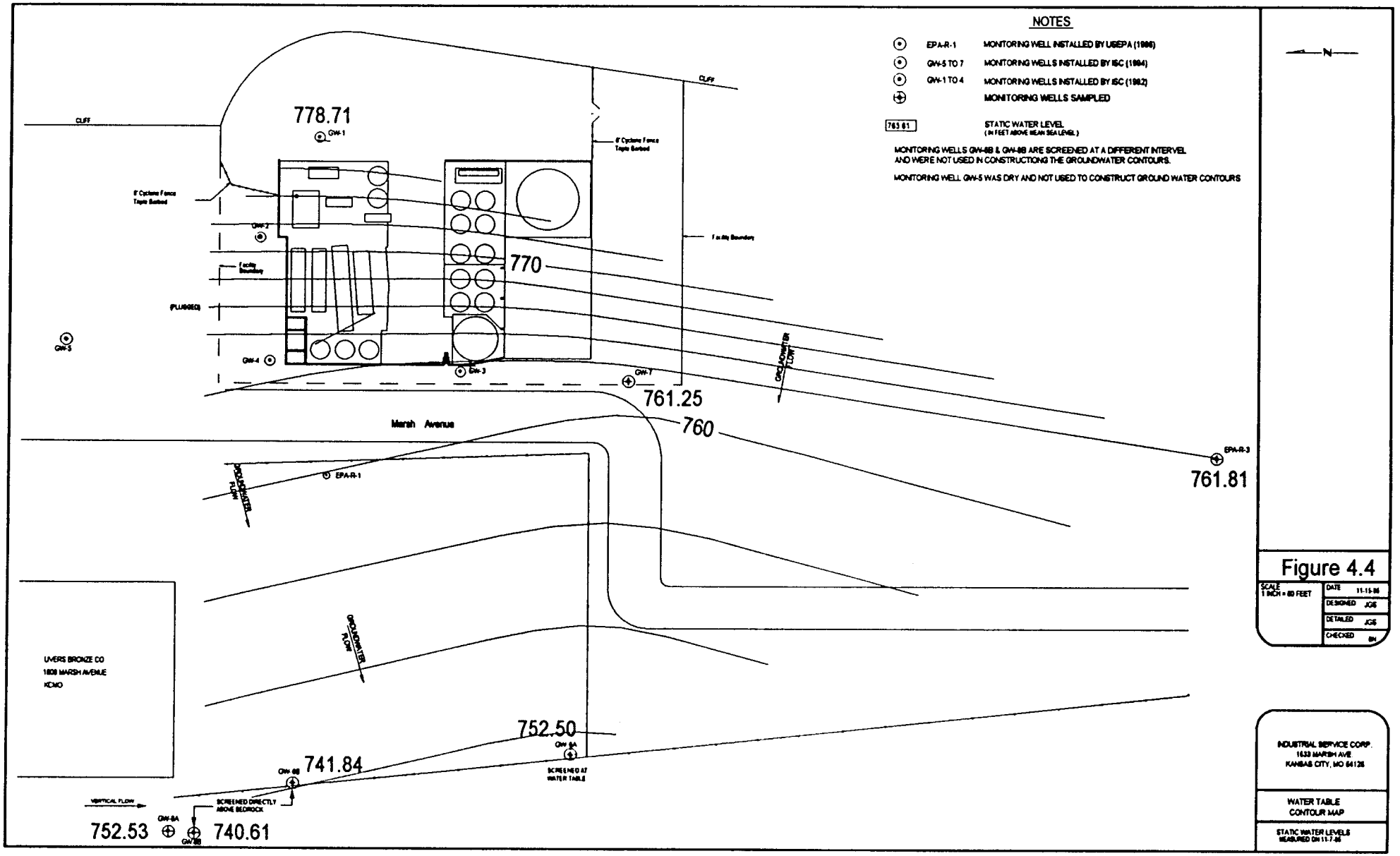
KANSAS CITY, MO 64126


NOTES
EPA-R-1 MONITORING WELL INSTALLED BY USEPA (1986)
GW-5 TO 7 MONITORING WELLS INSTALLED BY ISC (1984)
GW-1 TO 4 MONITORING WELLS INSTALLED BY ISC (1982)
MONITORING WELLS SAMPLED
763.81 STATIC WATER LEVEL (IN FEET ABOVE MEAN SEA LEVEL)
MONITORING WELLS GW-8B & GW-6B ARE SCREENED AT A DIFFERENT INTERVAL AND WERE NOT USED IN CONSTUCTING THE GROUND WATER CONTOURS
MONITORING WELL GW-5 WAS DRY AND NOT USED TO CONSTRUCT GROUND WATER CONTOURS
N
CLIFF
778.19
GW-1
8' Cyclone Fence Triple Barbed
GW-2
Facility Boundary
770
(PLUGGED)
763.72
GW-5
GW-4
GW-3
GW-7
760.47
GROUNDWATER FLOW
Marsh Avenue
760
761.95
EPA-R-3
EPA-R-1
LIVERS BRONZE CO
1808 MARSH AVENUE
KCMO
753.41
GW-6A
SCREENED AT WATER TABLE
742.81
GW-6B
VERTICAL FLOW
SCREENED DIRECTLY ABOVE BEDROCK
753.72
GW-8A
GW-8B
744.93
Figure 4.3
SCALE 1 INCH = 80 FEET
DATE 9-12-85
DESIGNED JGS
DETAILED JGS
CHECKED BH
INDUSTRIAL SERVICE CORP.
1633 MARSH AVE.
KANSAS CITY, MO 64126
WATER TABLE CONTOUR MAP
STATIC WATER LEVELS MEASURED 9-9-85


NOTES
EPA-R-1 MONITORING WELL INSTALLED BY USEPA (1986)
GW-5 TO 7 MONITORING WELLS INSTALLED BY ISC (1994)
GW-1 TO 4 MONITORING WELLS INSTALLED BY ISC (1992)
MONITORING WELLS SAMPLED
763.61 STATIC WATER LEVEL (IN FEET ABOVE MEAN SEA LEVEL)
MONITORING WELLS GW-6B & GW-8B ARE SCREENED AT A DIFFERENT INTERVEL AND WERE NOT USED IN CONSTRUCTIONG THE GROUNDWATER CONTOURS.
MONITORING WELL GW-5 WAS DRY AND NOT USED TO CONSTRUCT GROUND WATER CONTOURS
N
CLIFF
778.71
GW-1
6' Cyclone Fence Topic Barbed
GW-2
Facility Boundary
(PLUGGED)
GW-5
GW-4
GW-3
GW-7
761.25
770
760
761.81
EPA-R-3
Marsh Avenue
EPA-R-1
GROUNDWATER FLOW
UVERS BRONZE CO
1808 MARSH AVENUE
KCMO
752.50
GW-8A
SCREENED AT WATER TABLE
741.84
GW-6B
VERTICAL FLOW
SCREENED DIRECTLY ABOVE BEDROCK
752.53
GW-8A
GW-8B
740.61
Figure 4.4
SCALE 1 INCH = 80 FEET
DATE 11-15-96
DESIGNED JGS
DETAILED JGS
CHECKED BH
INDUSTRIAL SERVICE CORP.
1633 MARSH AVE
KANSAS CITY, MO 64126
WATER TABLE CONTOUR MAP
STATIC WATER LEVELS MEASURED ON 11-7-96

APPENDICES

APPENDIX 1

Borelogs and Well Construction Diagrams

TEST
TOTAL ENVIRONMENTAL SERVICES & TECHNOLOGIES

BOREHOLE LOG

LOCATION DESCRIPTION:
40' WEST OF LIVERS BLDG. AND 30' SOUTH OF BOX CULVERT
UNDER UNDER I-435 N. EXIT RAMP TO TRUMAN RD. RIGHT-OF-WAY

BORING/WELL ID: GW8A
WELL TAG ID: N/A
RIG TYPE & NUMBER: MOBILE B-61/715
DRILLING METHOD: HOLLOW STEM
SAMPLING METHOD: CONTINUOUS
BORING DIAMETER: 7 5/8
DATE DRILLED: 7/26/95
DRILLING CREW: G. GUERRA/ R. GEORGE/ H. GLEN
GEOLOGIST: M. COSSAIRT

CLIENT: I. S. C.
ADDRESS: 1633 S. MARSH
KANSAS CITY, MO
PROJECT CODE: ISC-KC
TEST ID: N/A
TOTAL DEPTH: 14.5'

ELEVATIONS (ft)		
PAD	TOC	SWL
764.13	763.45	755.31

STATIC WATER LEVEL (BLS)		
	While Drilling	After Boring
Depth(ft)	7.8'	8.14'
Time	?	?
Date:	7/26/95	8/23/95

SOIL SAMPLES	FIELD (ppm) ANALYSIS	LAB SAMPLES	DEPTH	LITHOLOGIC DESCRIPTION	LITHOLOGY	WELL INSTALLATION
			0	SOIL: DARK BROWN, FRIABLE		FLUSH MOUNT COVER; CONCRETE; LOCKABLE CAP; BENTONITE SEAL; 2" PVC RISER; 2" SCREEN .01" SLOT; FILTER PACK; NATURAL MATERIAL
				CLAY: DARK BROWN		
GW8B-5'	2			CLAY: DARK BROWN, ROOT CAVATIES WET @ 7.8'		
GW8A-7'	2					
				NO SAMPLE: SAMPLE LOST FROM SAMPLER		
			-10			
GW8A-11.5	2	■		CLAY: GRAY, SILTY, IRON STAINING PRESENT BORING STOPPED @ 14.5'		
GW8A-13.5	2					

TEST
TOTAL ENVIRONMENTAL SERVICES & TECHNOLOGIES

BOREHOLE LOG

LOCATION DESCRIPTION:
40' WEST OF LIVERS BRONZE BLDG. AND 30' SOUTH OF BOX CULVERT UNDER I-435 N. EXIT RAMP TO TRUMAN RD. RIGHT-OF-WAY

BORING/WELL ID:	GW8B	CLIENT:	I. S. C.
WELL TAG ID:	N/A	ADDRESS:	1633 S. MARSH
RIG TYPE & NUMBER:	MOBILE B-61/716		KANSAS CITY, MO
DRILLING METHOD:	HOLLOW STEM	PROJECT CODE:	ISC-KC
SAMPLING METHOD:	CONTINUOUS	TEST ID:	N/A
BORING DIAMETER:	7 5/8	TOTAL DEPTH:	73.0'
DATE DRILLED:	7/26/95 - 7/28/95		
DRILLING CREW:	G. GUERRA / R.GEORGE / H. GLENN		
GEOLOGIST:	M. COSSAIRT		

ELEVATIONS (Ft)		
PAD	TOC	SWL
764.97	763.97	753.52

STATIC WATER LEVEL (BLS)		
	While Drilling	After Boring
Depth(ft)	7.8'	10.45'
Time	?	?
Date:	7/26/95	8/23/95

SOIL SAMPLES | FIELD (ppm) ANALYSIS | LAB SAMPLES | DEPTH

LITHOLOGIC DESCRIPTION

NO SAMPLE: SEE LOG FOR GW8A

CLAY: BROWN

CLAY: GRAY, SILTY, SOME SAND LESS SAND AND WATER WITH INCREASING DEPTH

CLAY: GRAY, SILTY, WITH BROWN IRON STAINING

CLAY: GRAY, SILTY, NO IRON STAINING

CLAY: GRADING FROM DARK TO MEDIUM GRAY

SILT: GRAY - (SAMPLER STUCK FROM WET SILT PACKING BETWEEN SAMPLER AND AUGER. SAMPLING DISCONTINUED, ATTEMPTED AGAIN @45'-50' BUT UNSUCCESFUL. BALANCE OF LOG FROM CUTTINGS.)

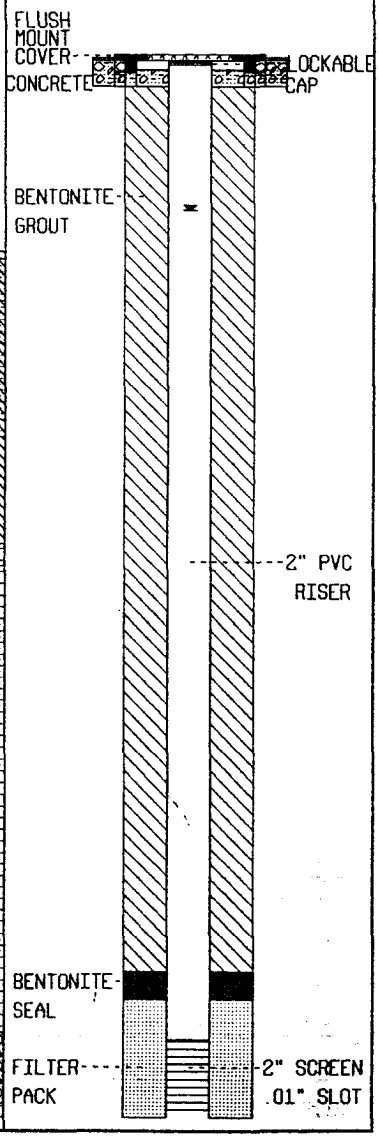
SILT: GRAY

GRAVEL: GRAY, WITH PEBBLES TO 1.5" DIA. (IDENTIFIED FROM CUTTINGS AND VIBRATION OF DRILL)

SHALE: DARK GRAY, BORING DISCONTINUED @ 73'

LITHOLOGY

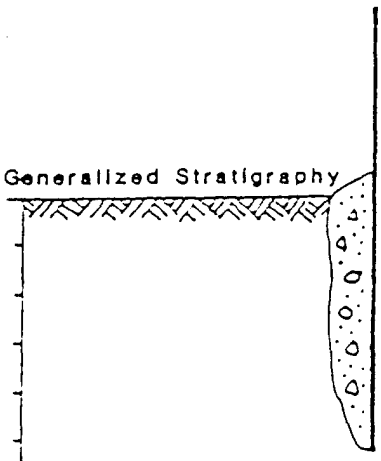
WELL INSTALLATION



GROUND WATER OBSERVATION WELL REPORT

Project Name: Industrial Service Corporation - Kansas City
Location: 1633 S. Marsh, Kansas City, MO 64126
Installed by: C. West, B.C. Millett
Inspected by:
Method of Installation: Mobile B-80, hollow stem augers, 7 7/8" borehole
Remarks: Water entered at 9.5, 14.5, 16, 18-20

Piez./Well No.: GW 2
Project No.:
Date: March 27, 1992
Time: 1300



Elevation of top of riser pipe: _____
Height of riser above ground: 2'
Ground Elevation: _____
I.D./Type of surface casing: 8" steel
3' AGL x 3' BGL
Type of surface seal: bentonite GoldSeal
Depth of surface seal: 5'
I.D./Type of riser pipe: 4" x 10' Sch. 40 PVC
Type of backfill: bentonite GoldSeal
Elev./Depth of top of seal: 5' BGL
Type of seal: 1/4" bentonite pellets
Elev./Depth of top of filter pack: 9' BGL
Elev./Depth of top of screen: 10' BGL
Type of filter pack: 10 x 20 silica sand
I.D./Type of screen: 4" x 10' stainless steel
Screen slot size: .01
Elev./Depth of bottom of screen: 20'
Elev./Depth of bottom of plugged blank section: 20'
Type of backfill below observation well: NA
Elev./Depth of bottom of boring: 20'
Diameter of boring: 7 7/8"

Deffenbaugh Industries, Inc.

Fig. _____

DEFFENBAUGH INDUSTRIES INC.-ENGINEERING SERVICES

PROJECT NO: NA SITE NO: NA BORING NO: GW-2 PROJECT NAME: KC, MO., ISC

DATE BEGAN: 3-31-92 DATE FINISHED: 3-31-92 PROJECT GEOLOGIST: K. J. BROOKS

DRILLER: C. WEST, B.C. MILLETT NORTH: NA EAST: NA

GROUND SURFACE ELEV.: 784.9 FT GWL DATE/TIME: 3-3192 GWL DEPTH: See Remarks

DRILLING METHOD: HOLLOW STEM AUGERS DRILL EQUIP: MOBILE B-80 GWL EQUIP: MOBILE B-80

CONTRACTOR: T.E.S.T. CHECKED BY: K.J.B.

ELEV (FT)	DEPTH (FT)	SAMPLE TYPE AND NO.	SPT BLOWS PER (0.5')	REC (FT)	PROFILE	DESCRIPTION	U.S.C.S.	VOLATILE ORGANIC VAPORS (ppm) FID	VOLATILE ORGANIC VAPORS (ppm) PID	REMARKS
	0.00					GRAVEL: (3.0 ft) Fill material, oil stained.				Drilled 7-7/8 in. boring. Sampled w/ 5" split barrel.
		4.0 FT				SILTY CLAY: (1.5 FT) Gray, green, brown, stiff. Oil stained.				
780.0	-5.00	5.0 ft				SILTY CLAY: (4.0 FT.) Tan to brown. Stiff. Slightly moist. Oil stained.				
		6.0 FT								
		7.5 FT								ORIGINAL STATIC WATER LEVEL @ 8 FT. below Top of Casing. Measured on 4/24/92.
		8.5 FT								
775.0	-10.00					SILTY CLAY: (3.0 FT.) Grayish green to brown. Stiff. Slightly moist. Oil stained.				Limestones at 9.5 ft, 11.5 ft, 15 ft, 18.5 ft, and 20 ft BGL yielded water during drilling.
		11.0 FT								
						SILTY CLAY: (3.0 FT.) Brown to gray. Slightly moist. Oil stained.				
		13.0 FT								
770.0	-15.00					LIMESTONE AND CLAY: Tan to gray, weathered, fractured.				
						SILTY CLAY: Brown and gray. Oil stained.				
						LIMESTONE AND CLAY: Tan to gray, weathered, fractured.				
		18.0 FT				SILTY CLAY: Dark gray. Stiff. Oil stained.				
						LIMESTONE AND CLAY: Tan to gray, weathered, fractured.				
765.0	-20.00	20.0 FT				SILTY CLAY WITH GRAVEL: Brown and tan, with weathered limestone fragments. Oil stained in lowest 1 ft.				
						BOTTOM OF BORING AT 20 ft. BGL. AUGER REFUSAL. Installed monitoring well GW-2 in boring. Used 4" diameter Schedule 40 PVC flush joint threaded pipe. Screens (0.010 in slot, stainless steel) installed from 10-20 ft. BGL). TOP OF CASING @ 2.0 FT. Above Ground Level.				
760.0	-25.00									
755.0	-30.00									

MONITORING WELL SOIL BORING INFORMATION FOR MONITORING WELLS

MW-1, MW-2, MW-3, MW-4, MW-5 AND MW-6

MW-1

Installed 10-11-86

0-2'	unconsolidated fill, limestone, gravel
2'-15'	brown, silty clay
15'-20'	lt. brown silty clay
20'-30'	clayey silt, lt. brown

MW-2

Installed 10-12-86

0-2'	inconsolidated fill limestone, gravel
2'-15'	brown, silty clay
16-21'	moist lt.brown claey silt

MW-3

Installed 10-11-86

0-2'	unconsolidated fill limestone, gravel
2-15'	brown silty clay
15-30'	lt. brown silty clay

MW-4

Installed 10-11-86

0-1'	gravel
1-5'	topsoil
5-15'	reddish clay
15'-30'	firm gray clay

MW-5

Installed 10-11-86

0-1'	gravel
1-5'	topsoil
5-10'	red, brown clay
10-30'	brown clay, wet

MW-6

Installed 10-12-86

0-3'	topsoil
3-15'	red clay
~~15'~~	~~shale~~ wrong
15-30'	gray clay, firm

APPENDIX 2

Well Development Records

TEST
Total Environmental Services & Technologies
18181 West 53rd Street • Shawnee, Kansas 66217

GROUND-WATER SAMPLING FORM

Well No. MW 8A
Well Type: ☒ Monitor ☐ Extraction ☐ Other
Well Material: ☒ PVC ☐ St. Steel ☐ Other
Date 8-23-95 Time
Sampled by JMC (Initials)

Job Name FSC-KC
Job Number
Recorded by [signature] (Signature)

WELL PURGING

PURGE VOLUME

Casing Diameter (D in inches):
☒ 2-inch ☐ 4-inch ☐ 6-inch ☐ Other
Total Depth of Casing (TD in feet BTOC): 14.14
Water Level Depth (WL in feet BTOC): 8.14
Number of Well Volumes to be purged (# Vols)
☐ 3 ☐ 4 ☒ 5 ☐ 10 ☐ Other

PURGE METHOD

☒ Bailer - Type: 1" x 5' PVC
☐ Submersible ☐ Centrifugal ☐ Bladder, Pump No.:
☐ Other - Type:

PUMP INTAKE SETTING

☐ Near Bottom ☐ Near Top ☐ Other
Depth in feet (BTOC): Screen Interval in feet (BTOC): from to

PURGE VOLUME CALCULATION

(14.14 TD (feet) − 8.16 WL (feet)) 6.0 x 2 D (inches)^2 x 5 # Vols x 0.0408 = 4.89 Calculated Purge Volume gallons

PURGE TIME

10:15 Start 10:45 Stop 30 MIN Elapsed

PURGE RATE

Initial ___ gpm Final ___ gpm

ACTUAL PURGE VOLUME

8.0 gallons

FIELD PARAMETER MEASUREMENT

Minutes Since Pumping Began	pH	Cond. (umhos/cm)	T ☐ °C ☐ °F	Other

Minutes Since Pumping Began	pH	Cond. (umhos/cm)	T ☐ °C ☐ °F	Other
Meter Nos.				

Observations During Purging (Well Condition, Turbidity, Color, Odor):
Discharge Water Disposal: ☐ Sanitary Sewer ☐ Storm Sewer ☐ Other

WELL SAMPLING

SAMPLING METHOD

☐ Bailer - Type:
☐ Submersible ☐ Centrifugal ☐ Bladder, Pump No.:
☐ Same As Above NO SAmple collected
☐ Grab - Type: Well Development ONLY
☐ Other - Type:

SAMPLE DISTRIBUTION Sample Series:

Sample No.	Volume/Cont.	Analysis Requested	Preservatives	Lab	Comments

QUALITY CONTROL SAMPLE

Duplicate Samples

Original Sample No.	Duplicate Sample No.

Blank Samples

Type	Sample No.

Other Samples

Type	Sample No.

TES I
Total Environmental Services & Technologies
18181 West 53rd Street • Shawnee, Kansas 66217

GROUND-WATER SAMPLING FORM

Well No. MW 8B
Well Type: ☒ Monitor ☐ Extraction ☐ Other
Well Material: ☒ PVC ☐ St. Steel ☐ Other
Job Name ISC-KC
Number
Date 8-23-95 Time
Recorded by Mick Connett (Signature)
Sampled by JML (Initials)

WELL PURGING

PURGE VOLUME

Casing Diameter (D in Inches):
☒ 2-Inch ☐ 4-inch ☐ 6-Inch ☐ Other
Total Depth of Casing (TD in feet BTOC): 70.69'
Water Level Depth (WL in feet BTOC): 10.45'
Number of Well Volumes to be purged (# Vols)
☐ 3 ☐ 4 ☒ 5 ☐ 10 ☐ Other

PURGE METHOD

☐ Bailer - Type:
☐ Submersible ☐ Centrifugal ☒ Bladder, Pump No.:
☐ Other - Type:

PUMP INTAKE SETTING

☒ Near Bottom ☐ Near Top ☐ Other
Depth in feet (BTOC): 69' Screen Interval in feet (BTOC): from 67.5 to 72.5

PURGE VOLUME CALCULATION

(70.69 − 10.45) × 60.24 × 2² × 5 × 0.0408 = 49.15 + 51.5 (construction) gallons

TD (feet) − WL (feet) × D (inches) × # Vols × Calculated Purge Volume 100.65

PURGE TIME

10:00 AM Start 2:45 PM Stop 4.75 hr Elapsed

PURGE RATE

Initial ____ gpm Final ____ gpm

ACTUAL PURGE VOLUME

105 gallons

FIELD PARAMETER MEASUREMENT

Minutes Since Pumping Began	pH	Cond. (umhos/cm)	T ☐°C ☐°F	Other

Minutes Since Pumping Began	pH	Cond. (umhos/cm)	T ☐°C ☐°F	Other
Meter Nos.				

Observations During Purging (Well Condition, Turbidity, Color, Odor):
Discharge Water Disposal: ☐ Sanitary Sewer ☐ Storm Sewer ☐ Other

WELL SAMPLING

SAMPLING METHOD

☐ Same As Above NO sample collected
☐ Baller - Type:
☐ Grab - Type: Well Development Only
☐ Submersible ☐ Centrifugal ☐ Bladder, Pump No.:
☐ Other - Type:

SAMPLE DISTRIBUTION

Sample Series:

Sample No.	Volume/Cont.	Analysis Requested	Preservatives	Lab	Comments

QUALITY CONTROL SAMPLE

Duplicate Samples

Original Sample No.	Duplicate Sample No.

Blank Samples

Type	Sample No.

Other Samples

Type	Sample No.

APPENDIX 3

Saturated Zone Data

GeoSystems Engineering, Inc.

Geotechnical and Environmental Consultants

Date: 12-7-95

To: Mr. Dan Taylor
Deffenbaugh Industries
P.O. Box 3220
Shawnee, Kansas 66203

Re: Industrial Services Corporation - Jackson County, Missouri

Jcb No. 951113

Description:

Results of three grain size analysis and permeability tests for Boring MW-8B.

Remarks:

Yours truly,
GeoSystems Engineering, Inc.

By: Richard L. Hanny, Jr.

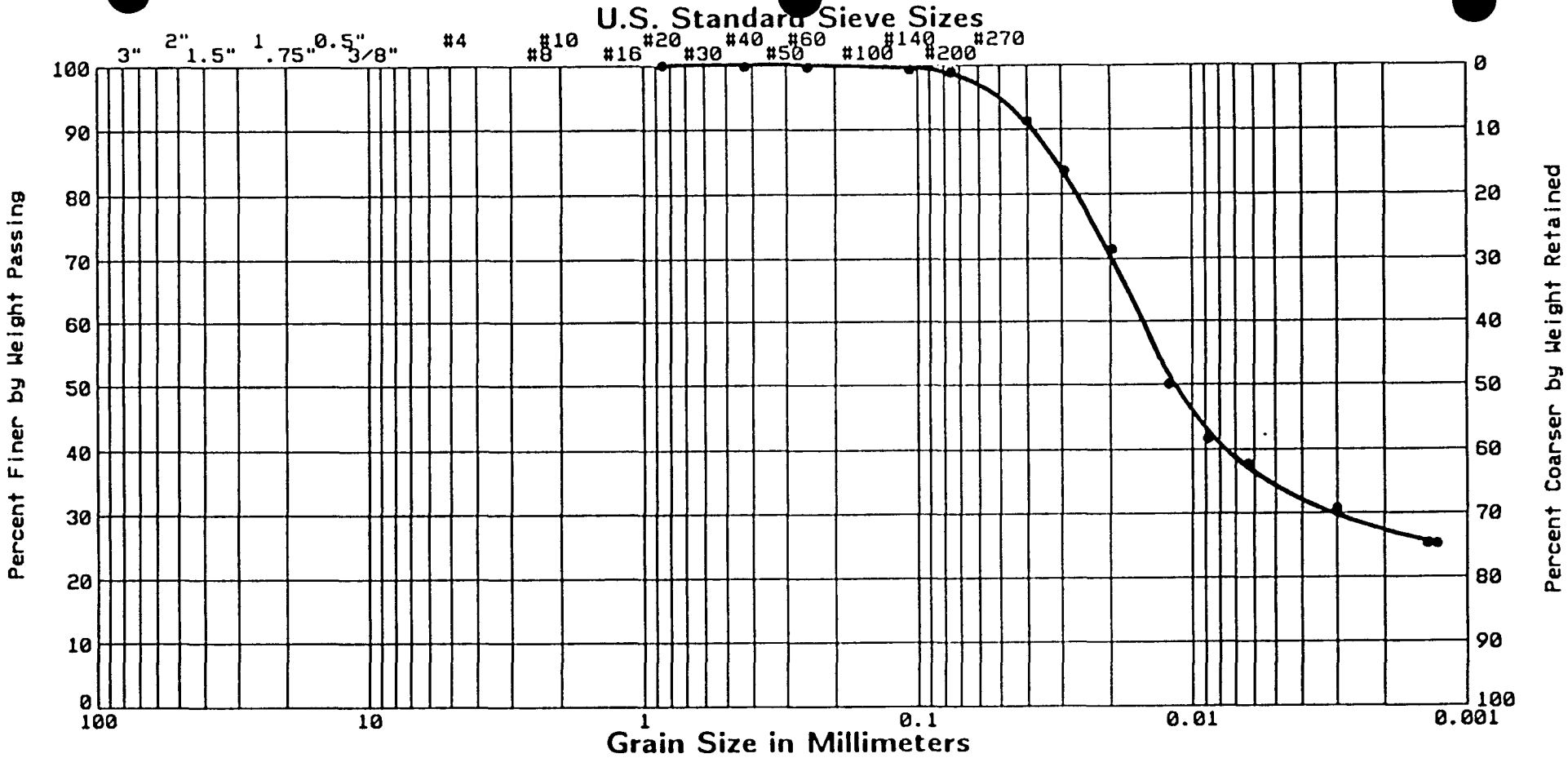
cc:

7856 Barton Lenexa, Kansas 66214 (913) 962-0909 Fax (913) 962-0924

SUMMARY OF LABORATORY TESTS

Depth (ft)	Moisture Content* (%)	Dry Density* (psf)	Clay Content (%)	Liquid Limit (%)	Plastic Limit (%)	Plasticity Index (%)	Coeff. of Perm (cm/sec)
22-24	23.1	95	35	39	23	16	9.6×10^{-8}
48-50	21.6	108	42	45	20	25	5.9×10^{-9}
68-70	22.9	97	35	48	21	27	1.3×10^{-8}

* = Before Permeability Test



GRAIN SIZE DISTRIBUTION CURVE

Boring No.	Sample No.	Depth, ft.	Description	Unified Symbol	Natural WC, %	LL, %	PL, %	PI, %
MW-8B		22.0	Clayey silt, gray brown mottled	CL-ML		39	23	16

Industrial Services Corporation

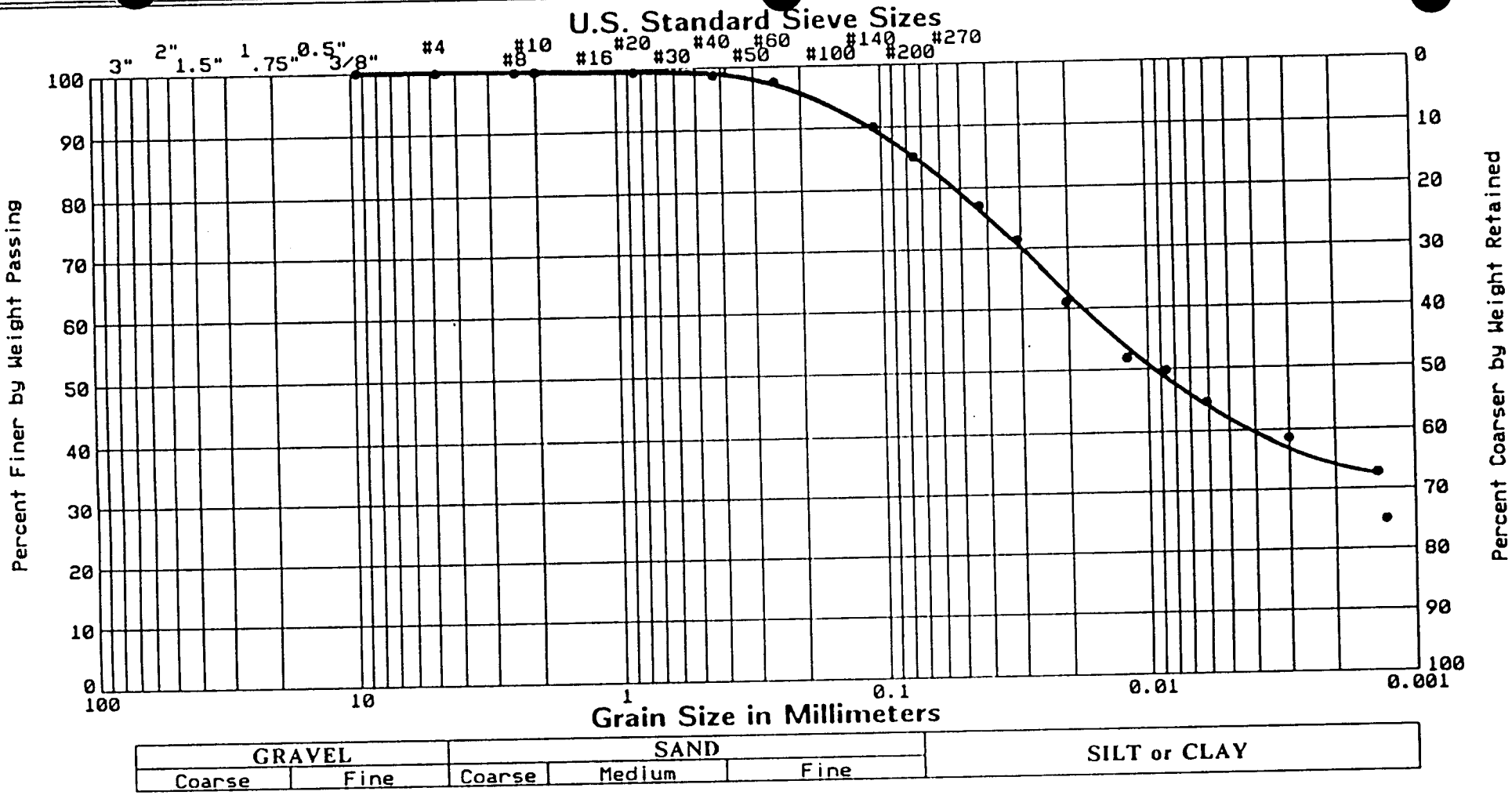
Jackson County, Missouri

Approved By SMM

Project No. 951113

ASTM D-421, D-422, C-136, C-117

GeoSystems Engineering, Inc.



GRAIN SIZE DISTRIBUTION CURVE

Boring No.	Sample No.	Depth, ft.	Description	Unified Symbol	Natural WC, %	LL, %	PL, %	PI, %
MW-8B		48.0	Lean clay w/ silt, dk brown,trace gravel	CL		45	20	25

Industrial Services Corporation

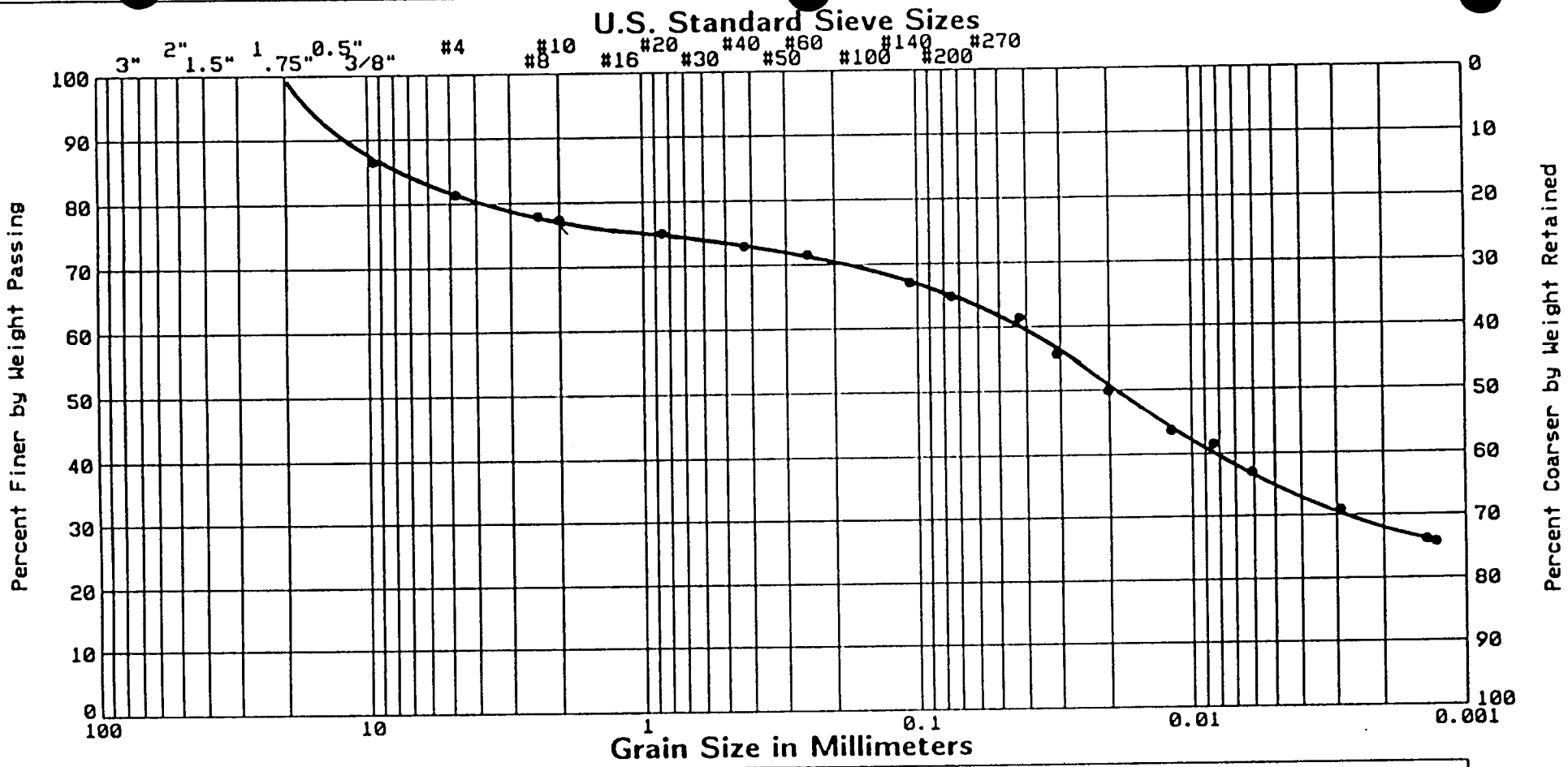
Jackson County, Missouri

Approved By SMM

Project No. 951113

ASTM D-421, D-422, C-136, C-117

GeoSystems Engineering, Inc.



GRAVEL		SAND			SILT or CLAY
Coarse	Fine	Coarse	Medium	Fine	

GRAIN SIZE DISTRIBUTION CURVE

Boring No.	Sample No.	Depth, ft.	Description	Unified Symbol	Natural WC, %	LL, %	PL, %	PI, %
MW-8B		68.0	Lean to fat clay, dk gray brn, w/ gravel	CL-CH		48	21	27

Industrial Services Corporation

Jackson County, Missouri

Approved By SMM

Project No. 951113

ASTM D-421, D-422, C-136, C-117

GeoSystems Engineering, Inc.

PERMEABILTY TEST RESULTS (ASTM 5084)

Project Name	Industrial Services	Job No.	951113
		Date	11-30-95

Boring No.	MW-8B	Boring No.	MW-8B
Sample Type		Sample Type	
Sample Depth	22-24'	Sample Depth	48-50'
Sample Description		Sample Description	

	Before		Units		Before	After	Units
Moisture Content, w	23.1	26.9	%	Moisture Content, w	21.6	23.2	%
Dry Unit Weight, Dd	95.2	95.5	pcf	Dry Unit Weight, Dd	107.6	105.9	pcf
Height, L	3.85	3.85	inches	Height, L	3.65	3.65	inches
Diameter, d	2.80	2.80	inches	Diameter, d	2.75	2.75	inches
Degree of Saturation, Sr	81.0	95.0	%	Degree of Saturation, Sr	103.1	106.0	%
Applied Pressure (influent):		44.4	psi	Applied Pressure (influent):		45	psi
Applied Pressure (effluent):		43	psi	Applied Pressure (effluent):		43	psi
Hydraulic Gradient:		10		Hydraulic Gradient:		11	

Test Number		Time (sec)	Influent Reading	Effluent Peading	Test Number		Time (sec)	Influent Reading	Effluent Peading
1	Start	0	13.7	9.3	1	Start	0	7.3	6.8
	Finish	75660	16.1	7.0		Finish	93480	7.5	6.5
2	Start	0	16.1	7.0	2	Start	0	9.0	5.2
	Finish	76620	18.6	4.5		Finish	73080	9.2	5.1
3	Start	0	18.6	4.5	3	Start	0	9.2	5.1
	Finish	92640	21.6	1.5		Finish	76140	9.3	4.9
4	Start	0	21.6	1.5	4	Start	0	9.3	4.9
	Finish	32040	22.7	0.4		Finish	76740	9.5	4.7

Hydraulic Conductivity "k" (cm/sec)	1	8.3E-08	Hydraulic Conductivity "k" (cm/sec)	1	6.6E-09
	2	9.3E-08		2	5.3E-09
	3	9.9E-08		3	5.1E-09
	4	1.1E-07		4	6.7E-09
	Avg. k	9.6E-08		Avg. k	5.9E-09

Assumed Specific Gravity, SG	2.70	Area of Tube, a	0.9721
Permeant : Deaired Tap Water			

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Formulas:

Permeability (Falling Head-Rising Tailwater Test)

$k = (a*L/2*A*t) \ln(ho/h1)$

Degree of Saturation

$Sr = w*SG/e$

$Dd = (SG/1+e)Dw$

$Sr = (w*SG)/((SG*Dw/Dd)-1)$

k	Hydraulic Conductivity (cm/sec)	Sr	Degree of Saturation (%)
a	Area of Tube (cm^2)	w	Moisture Content (%)
L	Height or Length of Sample (cm)	S	Specific Gravity
A	Area of Sample (cm)	e	Void Ratio
t	Time of Test Interval (sec)	D	Dry Unit Weight (pcf)
h0	Height of Head at Start of Test Interval (c	D	Unit Weight of Water (62.4 pcf)
h1	Height of Head at End of Test Interval (cm)		

GeoSystems Engineering, Inc.

PERMEABILTY TEST RESULTS (ASTM 5084)

Project Name	Industrial Services	Job No.	951113
		Date	11-30-95

Boring No.	MW-8B	Boring No.	
Sample Type		Sample Type	
Sample Depth	68-72'	Sample Depth	
Sample Description		Sample Description	

	Before	After	Units		Before	After	Units
Moisture Content, w	22.9	25.6	%	Moisture Content, w			%
Dry Unit Weight, Dd	97.4	97.6	pcf	Dry Unit Weight, Dd			pcf
Height, L	3.97	3.97	inches	Height, L			inches
Diameter, d	2.80	2.80	inches	Diameter, d			inches
Degree of Saturation, Sr	84.7	95.2	%	Degree of Saturation, Sr			%
Applied Pressure (influent):		44.4	psi	Applied Pressure (influent):			psi
Applied Pressure (effluent):		43	psi	Applied Pressure (effluent):			psi
Hydraulic Gradient:		10		Hydraulic Gradient:			

Test Number		Time (sec)	Influent Reading	Effluent Reading	Test Number		Time (sec)	Influent Reading	Effluent Reading
1	Start	0	12.1	16.3	1	Start			
	Finish	54300	12.6	16.2		Finish			
2	Start	0	12.6	16.2	2	Start			
	Finish	104400	13.1	15.7		Finish			
3	Start	0	13.1	15.7	3	Start			
	Finish	166500	14.0	14.9		Finish			
4	Start	0	14.0	14.9	4	Start			
	Finish	74700	14.4	14.5		Finish			

Hydraulic Conductivity "K" (cm/sec)	1	1.4E-08	Hydraulic Conductivity "K" (cm/sec)	1	
	2	1.2E-08		2	
	3	1.3E-08		3	
	4	1.4E-08		4	
	Avg. k	1.3E-08		Avg. k	

Assumed Specific Gravity, SG	2.70	Area of Tube, a	0.9721
Permeant : Deaired Tap Water			

Formulas:

F:\qpro\permnew.wq2 6/20/95

Permeability (Falling Head-Rising Tailwater Test)

$k = (a*L/2*A*t) \ln(ho/h1)$

Degree of Saturation

$Sr = w*SG/e$

$Dd = (SG/1+e)Dw$

$Sr = (w*SG)/((SG*Dw/Dd)-1)$

k	Hydraulic Conductivity (cm/sec)	Sr	Degree of Saturation (%)
a	Area of Tube (cm^2)	w	Moisture Content (%)
L	Height or Length of Sample (cm)	S	Specific Gravity
A	Area of Sample (cm)	e	Void Ratio
t	Time of Test Interval (sec)	D	Dry Unit Weight (pcf)
h0	Height of Head at Start of Test Interval (c	D	Unit Weight of Water (62.4 pcf)
h1	Height of Head at End of Test Interval (cm)		

GeoSystems Engineering, Inc.

APPENDIX 4

Soil Analytical Data

Quality Analytical Services

1633 S. Marsh • Box 266426 • Kansas City, MO 64126 • (816) 254-5257

SERVICE TO: Industrial Service Corporation
1633 South Marsh
Kansas City, MO 64126

REPORT #: 50726001-2

DATE: 10-5-95

ATTN: Brent Nickel

QAS #: 50726001
DATE SAMPLED: 7-26-95
SAMPLE IDENTIFICATION: Soil: MW8A-11.5'

DATE RECEIVED: 7-26-95
SAMPLED BY: Mick Cossairt

VOLATILE ORGANIC COMPOUNDS - SW-846-8260

	PARAMETER	DET. LIMIT (ug/Kg)	CONC. (ug/Kg)
	Acetone	250	ND
*	Acetonitrile	625	ND
*	Acrolein	625	ND
*	Acrylonitrile	125	ND
*	Allyl chloride	125	ND
	Benzene	65	ND
	Bromodichloromethane	65	ND
	Bromoform	65	ND
	Carbon disulfide	65	ND
	Carbon tetrachloride	65	ND
	Chlorobenzene	65	ND
	Chloroethane	65	ND
	Chloroform	65	ND
*	Chloroprene	125	ND
	Dibromochloromethane	65	ND
	1,2-Dibromo-3-chloropropane	125	ND
	1,2-Dibromoethane	125	ND
*	trans-1,4-Dichloro-2-butene	125	ND
	Dichlorodifluoromethane	125	ND
	1,1-Dichloroethane	65	ND
	1,2-Dichloroethane	65	ND
	1,1-Dichloroethene	65	ND
	trans-1,2-Dichloroethene	65	ND
	1,2-Dichloropropane	65	ND
	cis-1,3-Dichloropropene	65	ND
	trans-1,3-Dichloropropene	65	ND
*	1,4-Dioxane	2,500	ND

ND = NOT DETECTED
* TENATIVELY IDENTIFIED COMPOUND

Norman L. Cunningham

Quality Analytical Services

1633 S. Marsh • Box 266426 • Kansas City, MO 64126 • (816) 254-5257

SERVICE TO: Industrial Service Corporation
1633 South Marsh
Kansas City, MO 64126

REPORT #: 50726001-3

DATE: 10-5-95

ATTN: Brent Nickel

QAS #: 50726001
DATE SAMPLED: 7-26-95
SAMPLE IDENTIFICATION: Soil: MW8A-11.5'

DATE RECEIVED: 7-26-95
SAMPLED BY: Mick Cossairt

SEMI-VOLATILE ORGANIC COMPOUNDS - SW-846-8270

	PARAMETER	DET. LIMIT (ug/Kg)	CONC. (ug/Kg)
	Acenaphthene	500	ND
	Acenaphthylene	500	ND
*	Acetophenone	5,000	ND
*	2-Acetylaminofluorene	5,000	ND
*	4-Aminobiphenyl	5,000	ND
*	Aniline	5,000	ND
	Anthracene	500	ND
*	Aramite	10,000	ND
	Benzo(a)anthracene	500	ND
	Benzo(b)fluoranthene	500	ND
	Benzo(k)fluoranthene	500	ND
	Benzo(g,h,i)perylene	500	ND
	Benzo(a)pyrene	500	ND
	Benzyl alcohol	1,000	ND
	Bis(2-chloroethoxy)methane	500	ND
	Bis(2-chloroethyl)ether	500	ND
	Bis(2-chloroisopropyl)ether	500	ND
	Bis(2-ethylhexyl)phthalate	500	ND
	4-Bromophenyl phenyl ether	500	ND
	Butyl benzyl phthalate	500	ND
	4-Chloroaniline	1,000	ND
*	Chlorobenzilate	5,000	ND
	4-Chloro-3-methylphenol	1,000	ND
	2-Chloronaphthalene	500	ND
	2-Chlorophenol	500	ND
	4-Chlorophenyl phenyl ether	500	ND
	Chyrsene	500	ND
	3-Methylphenol	500	ND

ND = NOT DETECTED
* TENATIVELY IDENTIFIED COMPOUND

Norman L. Cunningham

Quality Analytical Services

1633 S. Marsh • Box 266426 • Kansas City, MO 64126 • (816) 254-5257

SERVICE TO: Industrial Service Corporation
Kansas City, MO

REPORT #: 50726001-3

DATE: 10-5-95

ATTN: Brent Nickel

SEMI-VOLATILE ORGANIC COMPOUNDS - SW-846-8270

PARAMETER	DET. LIMIT (ug/Kg)	CONC. (ug/Kg)
2-Methylphenol	500	ND
4-Methylphenol	500	ND
* Diallate	5,000	ND
Dibenz(a,h)anthracene	500	ND
Dibenzofuran	500	ND
Di-n-butyl phthalate	500	ND
1,2-Dichlorobenzene	500	ND
1,3-Dichlorobenzene	500	ND
1,4-Dichlorobenzene	500	ND
3,3'-Dichlorobenzidine	1,000	ND
2,4-Dichlorophenol	500	ND
* 2,6-Dichlorophenol	5,000	ND
Diethyl phthalate	500	ND
* Thionazin	5,000	ND
* Dimethoate	5,000	ND
* p-(Dimethylamino)azobenzene	5,000	ND
* 7,12-Dimethylbenz(a)anthracene	5,000	ND
* 3,3'-Dimethylbenzidine	5,000	ND
* a,a-Dimethylphenethylamine	1,000	ND
2,4-Dimethylphenol	500	ND
Dimethyl phthalate	500	ND
* 1,3-Dinitrobenzene	5,000	ND
2-Methyl-4,6-dinitrophenol	2,500	ND
2,4-Dinitrophenol	2,500	ND
2,4-Dinitrotoluene	500	ND
2,6-Dinitrotoluene	500	ND
Di-n-octyl phthalate	500	ND
* Diphenylamine	1,000	ND
* Disulfoton	5,000	ND
* Ethyl methanesulfonate	5,000	ND

ND = NOT DETECTED
* TENATIVELY IDENTIFIED COMPOUND

Norman L. Cunningham

Quality Analytical Services

1633 S. Marsh • Box 266426 • Kansas City, MO 64126 • (816) 254-5257

SERVICE TO: Industrial Service Corporation
Kansas City, MO

REPORT #: 50726001-3

DATE: 10-5-95

ATTN: Brent Nickel

SEMI-VOLATILE ORGANIC COMPOUNDS - SW-846-8270

PARAMETER	DET. LIMIT (ug/Kg)	CONC. (ug/Kg)
* Famphur	10,000	: ND
Fluoranthene	500	: ND
Fluorene	500	: ND
Hexachlorobutadiene	500	: ND
Hexachlorocyclopentadiene	500	: ND
Hexachloroethane	500	: ND
* Hexachlorophene	50,000	: ND
* Hexachloropropene	5,000	: ND
Indeno(1,2,3-cd)pyrene	500	: ND
* Isodrin	5,000	: ND
Isophorone	500	: ND
* Isosafrole	5,000	: ND
* Kepone	10,000	: ND
* Methapyrilene	5,000	: ND
* 3-Methylcholanthrene	5,000	: ND
* Methyl methanesulfonate	5,000	: ND
2-Methylnaphthalene	500	: ND
* Methyl parathion	5,000	: ND
Naphthalene	500	: ND
* 1,4-Naphthoquinone	5,000	: ND
* 1-Naphthylamine	5,000	: ND
* 2-Naphthylamine	5,000	: ND
2-Nitroaniline	2,500	: ND
3-Nitroaniline	2,500	: ND
4-Nitroaniline	2,500	: ND
Nitrobenzene	500	: ND
2-Nitrophenol	500	: ND
4-Nitrophenol	2,500	: ND
* 4-Nitroquinoline 1-oxide	10,000	: ND
* N-Nitrosodi-n-butylamine	5,000	: ND
* N-Nitrosodiethylamine	5,000	: ND

ND = NOT DETECTED
* TENATIVELY IDENTIFIED COMPOUND

Norman L. Cunningham

Quality Analytical Services

1633 S. Marsh • Box 266426 • Kansas City, MO 64126 • (816) 254-5257

SERVICE TO: Industrial Service Corporation
Kansas City, MO

REPORT #: 50726001-3

DATE: 10-5-95

ATTN: Brent Nickel

SEMI-VOLATILE ORGANIC COMPOUNDS - SW-846-8270

	PARAMETER	DET. LIMIT (ug/Kg)	CONC. (ug/Kg)
*	N-Nitrosodimethylamine	5,000	: ND
	N-Nitrosodiphenylamine	500	: ND
	N-Nitrosodipropylamine	500	: ND
*	N-Nitrosomethylethylamine	5,000	: ND
*	N-Nitrosomorpholine	5,000	: ND
*	N-Nitrosopiperidine	5,000	: ND
*	N-Nitrosopyrolidine	5,000	: ND
*	5-Nitro-o-toluidine	5,000	: ND
*	Parathion	5,000	: ND
*	Pentachlorobenzene	5,000	: ND
*	Pentachloronitrobenzene	5,000	: ND
	Pentachlorophenol	2,500	: ND
*	Phenacetin	5,000	: ND
	Phenanthrene	500	: ND
	Phenol	500	: ND
*	p-Phenylenediamine	50,000	: ND
*	Phorate	5,000	: ND
*	2-Picoline	1,000	: ND
*	Pronamide	5,000	: ND
	Pyrene	500	: ND
*	Pyridine	10,000	: ND
*	Safrole	5,000	: ND
*	1,2,4,5-Tetrachlorobenzene	5,000	: ND
*	2,3,4,6-Tetrachlorophenol	5,000	: ND
*	Tetraethyl dithiopyrophosphate	5,000	: ND
*	o-Toluidine	1,000	: ND
	1,2,4-Trichlorobenzene	500	: ND
	2,4,5-Trichlorophenol	500	: ND
	2,4,6-Trichlorophenol	500	: ND
*	O,O,O-Triethyl phosphorothioate	5,000	: ND
*	sym-Trinitrobenzene	5,000	: ND

ND = NOT DETECTED
* TENATIVELY IDENTIFIED COMPOUND

Norman L. Cunningham

Quality Analytical Services

1633 S. Marsh • Box 266426 • Kansas City, MO 64126 • (816) 254-5257

SERVICE TO: Industrial Service Corporation
1633 South Marsh
Kansas City, MO 64126

REPORT #: 50726001-1

DATE: 10-5-95

ATTN: Brent Nickel

QAS #: 50726001
DATE SAMPLED: 7-26-95
SAMPLE IDENTIFICATION: Soil: MW8A-11.5'

DATE RECEIVED: 7-26-95
SAMPLED BY: Mick Cossairt

PARAMETER	METHOD	DET. LIMIT	CONC.
Total Metals	SW-846-3050	(mg/Kg)	: (mg/Kg)
Antimony	SW-846-6010	3.0	: ND
Arsenic	SW-846-6010	5.0	: 5.62
Barium	SW-846-6010	2.0	: 155
Beryllium	SW-846-6010	0.05	: 0.521
Cadmium	SW-846-6010	0.25	: ND
Chromium	SW-846-6010	0.4	: 9.64
Cobalt	SW-846-6010	0.05	: 5.16
Copper	SW-846-6010	0.45	: 9.56
Lead	SW-846-6010	5.0	: 7.64
Mercury	SW-846-7471	0.075	: ND
Nickel	SW-846-6010	0.75	: 15.2
Selenium	SW-846-6010	5.0	: ND
Silver	SW-846-6010	2.5	: ND
Thallium	SW-846-7841	0.185	: ND
Tin	SW-846-6010	2.5	: ND
Vanadium	SW-846-6010	0.7	: 28.6
Zinc	SW-846-6010	0.4	: 43.3
Cyanide, Total	SW-846-9010	0.25 mg/Kg	: ND
Sulfide, Total	SW-846-9030	2.5 mg/Kg	: ND

ND = NOT DETECTED
NA = NOT APPLICABLE

Norman L. Cunningham

Quality Analytical Services

1633 S. Marsh • Box 266426 • Kansas City, MO 64126 • (816) 254-5257

SERVICE TO: Industrial Service Corporation
1633 South Marsh
Kansas City, MO 64126

REPORT #: 50726001-5

DATE: 10-5-95

ATTN: Brent Nickel

QAS #: 50726001
DATE SAMPLED: 7-26-95
SAMPLE IDENTIFICATION: Soil - MW8A-11.5'

DATE RECEIVED: 7-26-95
SAMPLED BY: Mick Cossairt

PARAMETER	METHOD	DET. LIMIT	CONC.
		(ug/Kg)	(ug/Kg)
CHLORINATED HERBICIDES			
2,4-D	SW-846-8150	4.0	ND
2,4,5-T	SW-846-8150	2.0	ND
2,4,5-TP (Silvex)	SW-846-8150	2.0	ND
Dinoseb	SW-846-8150	2.0	ND

ND = NOT DETECTED
NA = NOT APPLICABLE

Norman L. Cunningham

Quality Analytical Services

1633 S. Marsh • Box 266426 • Kansas City, MO 64126 • (816) 254-5257

SERVICE TO: Industrial Service Corporation
1633 South Marsh
Kansas City, MO 64126

REPORT #: 50726001-4

DATE: 10-5-95

ATTN: Brent Nickel

QAS #: 50726001
DATE SAMPLED: 7-26-95
SAMPLE IDENTIFICATION: Soil: MW8A-11.5'

DATE RECEIVED: 7-26-95
SAMPLED BY: Mick Cossairt

PESTICIDES AND PCBS - SW-846-8080

PARAMETER	DET. LIMIT (ug/Kg)	CONC. (ug/Kg)
Aldrin	5.4	ND
alpha-BHC	4.0	ND
beta-BHC	8.0	ND
delta-BHC	12.0	ND
gamma-BHC	5.4	ND
Chlordane	18.8	ND
4,4'-DDD	14.8	ND
4,4'-DDE	5.4	ND
4,4'-DDT	16.0	ND
Dieldrin	2.6	ND
Endosulfan I	18.8	ND
Endosulfan II	5.4	ND
Endosulfan sulfate	88.4	ND
Endrin	8.0	ND
Endrin aldehyde	30.8	ND
Heptachlor	4.0	ND
Heptachlor epoxide	111	ND
Hexachlorobenzene	68.0	ND
Methoxychlor	236	ND
Toxaphene	322	ND
PCB-1016	87.2	ND
PCB-1221	87.2	ND
PCB-1232	87.2	ND
PCB-1242	87.2	ND
PCB-1248	87.2	ND
PCB-1254	174	ND
PCB-1260	174	ND

ND = NOT DETECTED

Norman L. Cunningham

APPENDIX 5

Waste Authorization and Soil Analytical Data

Johnson County
Kansas

RECEIVED
NOV 1 6 1995
ENVIRONMENTAL DEPT

November 14, 1995

Mr. Sean White
Manager, Legislature & Regulatory Affairs
ISC
1633 S. Marsh, P.O. Box 266219
Kansas City, Missouri 64126

Re: Johnson County Industrial Solid Waste Disposal Authorization Number 95-234

Dear Mr. White:

We are in receipt of your letter of November 2, 1995, requesting to dispose of approximately five cubic yards of soil cuttings. Information you supplied indicated the waste is non-hazardous.

Approval is given to dispose of this waste at the Johnson County Landfill, Inc., operating under Kansas Permit 263 and Johnson County Permit No. 95-0E, provided the following conditions are met:

1. Approval to deliver the waste must be obtained from the landfill operator prior to transporting the waste to the landfill. The final decision on whether to accept or reject the waste rests with the landfill operator. Please call Mr. Dan Taylor, 913/631-3300 to obtain approval. If the landfill operator refuses to accept this waste you should contact us to determine alternative disposal options.

2. The waste must be transported separately to the landfill and be identified to the operator upon delivery.

3. Kansas Administrative Regulation 28-29-108(12) requires solid waste disposal facilities to maintain a log of commercial or industrial solid wastes received including sludges, barreled wastes and special wastes. The log shall indicate the source and quantity of waste and the disposal location. The industrial waste authorization number should be used as identification when entering the shipment into the log.

4. Sludges must be adequately containerized to prevent spillage of waste on roads and highways during transportation.

Environmental Department | Southlake Tech Center Bldg. #4 | 11180 Thompson Ave. Lenexa, KS 66219 | (913) 492-0402 Fax (913) 492-0142

5. This approval is valid for a one-time shipment only of this waste to the landfill. This authorization expires November 14, 1996. If the waste has not been taken to the landfill by this date, you must apply for a new authorization.

If you have any questions, please contact Inna Prilutsky of this office.

Sincerely,

Philip J. Wittek
Director

PJW:IP:cw/SWST1/95-234.swd

c: Richard Bronaugh, Kansas Department of Health and Environment
Inna Prilutsky, Environmental Programs Coordinator
Dan Taylor, Johnson County Landfill, Inc.

RECEIVED

NOV 3 1995

ENVIRONMENTAL DEPT.

JOHNSON COUNTY ENVIRONMENTAL DEPARTMENT
11180 Thompson Avenue
Southlake Tech Center, Building #4
Lenexa, Kansas 66219

SPECIAL WASTE DISPOSAL REQUEST FORM

I. General Information

Company Name	TSC
Address	1633 S. Marsh, PO Box 266219
City, State, Zip	Kansas City, MO 64126
Contact, Title	Sean White, Director of Republican Initiatives
Telephone Number	(913) 631-3300

II. Waste Characterization

A. Name of Waste: Soil Cuttings

B. Description of Waste Generation Process: Soil from installation of monitoring wells

C. Physical State: (Check One) 1-Solid X 2-Slurry __ 3-Liquid __ 4-Sludge __ 5-Other (Specify) _____

Waste Physical Properties: pH ____% Solids By Weight ____ Flash Point ____ Using Pensky-Martins Closed Cup (ASTM D-93-77) or Setaflash Closed Tester (ASTM D-3278-73) Special Gravity _____
Odor Description _____ Free Fluid: Yes ___ No X

D. Was the waste ever classified or listed as hazardous? no
If Yes, the previous waste I.D. number was _____

E. Chemical Composition (attach any additional analysis with description of sampling and analytical methods, and all applicable Material Safety Data Sheets). Lab analysis cannot be older than one (1) year to be used here. All analyses performed by or for the waste generator shall be performed in accordance with standard laboratory methods and performed by a laboratory certified by the Kansas Department of Health and Environment for the required parameters, utilizing Environmental Protection Agency approved methodologies, 40 CFR 136.

Major Components - Weight %

1	see attached	4	
2	analysis	5	
3		6	

F. Source of Chemical Data: Quality analytical services

III. Disposal Rate

Waste Disposal will be: (Check One)

A. Continual _____ Average Disposal Rate Per Month _____ Include Units

B. Intermittent _____ Rate _____ Include Units

C. One Time Only X Quantity 5.0 Include Units yd 3

D. If A or B, indicate amount for immediate disposal _____

IV. Transportation

A. Container Used for Transportation (Check One)

1. _____ Bulk (_____ cubic yards)
2. X Metal Drum (55 gallons)
3. _____ Cases, Cartons (size, number/case _____)
4. _____ Fiber Drums (_____ gallons)
5. Other (Specify) _____

B. Will the container used in transport be landfilled with the waste? yes

If No, specify _____

V. Certification

I, the undersigned, submit this request to dispose of the named waste and certify that the waste named herein to the best of my knowledge is not a hazardous waste as defined by the state(s) in which it is generated, transported, and/or stored, including the Kansas Hazardous Waste Management Regulations, and that the information supplied by me is correct. I also understand that if a disposal authorization is issued will be valid for one (1) year from the date of issue.

Signature of Waste Generator*	Sean White
Print Name	Sean White
Title	Director of Republican Initiatives
Date	11-2-95

correction made

Additional Comments:

_____

_____

_____

_____

Quality Analytical Services

1633 S. Marsh • Box 266426 • Kansas City, MO 64126 • (816) 254-5257

SERVICE TO: Industrial Service Corporation
: 1633 South Marsh
: Kansas City, MO 64126
:

REPORT #: 50823006-1

DATE: 10-17-95

ATTN: Brent Nickel

QAS #: 50823006
DATE SAMPLED: 8-23-95
SAMPLE IDENTIFICATION: Soil - #1

DATE RECEIVED: 8-23-95
SAMPLED BY: Mick Cossairt

PARAMETER	METHOD	DET. LIMIT (mg/L)	CONC. (mg/L)
TCLP - Metals	SW-1311		
Arsenic	SW-6010	0.1	: ND
Barium	SW-6010	0.04	: 1.18
Cadmium	SW-6010	0.005	: ND
Chromium	SW-6010	0.008	: ND
Lead	SW-6010	0.1	: ND
Mercury	SW-7470	0.0003	: ND
Selenium	SW-6010	0.1	: ND
Silver	SW-6010	0.05	: ND

ND = NOT DETECTED

Norman L. Cunningham

Quality Analytical Services

1633 S. Marsh • Box 266426 • Kansas City, MO 64126 • (816) 254-5257

SERVICE TO: Industrial Service Corporation
: 1633 South Marsh
: Kansas City, MO 64126
:

REPORT #: 50823006-3

DATE: 10-17-95

ATTN: Brent Nickel

QAS #: 50823006
DATE SAMPLED: 8-23-95
SAMPLE IDENTIFICATION: Soil - #1

DATE RECEIVED: 8-23-95
SAMPLED BY: Mick Cossairt

(TCLP) SEMI-VOLATILE ORGANIC COMPOUNDS - SW-846-1311/8270

PARAMETER	DET. LIMIT (mg/L)	CONC. (mg/L)
o-Cresol (2-Methylphenol)	0.025	ND
m-Cresol (3-Methylphenol)	0.025	ND
p-Cresol (4-Methylphenol)	0.025	ND
Cresol (Total)	0.025	ND
1,4-Dichlorobenzene	0.025	ND
2,4-Dinitrotoluene	0.025	ND
Hexachlorobenzene	0.025	ND
Hexachloro-1,3-butadiene	0.025	ND
Hexachloroethane	0.025	ND
Nitrobenzene	0.025	ND
Pentachlorophenol	0.125	ND
Pyridine	5.00	ND
2,4,5-Trichlorophenol	0.025	ND
2,4,6-Trichlorophenol	0.025	ND

ND = NOT DETECTED

Norman L. Cunningham

Quality Analytical Services

1633 S. Marsh • Box 266426 • Kansas City, MO 64126 • (816) 254-5257

SERVICE TO: Industrial Service Corporation
: 1633 South Marsh
: Kansas City, MO 64126
:

REPORT #: 50823006-4

DATE: 10-17-95

ATTN: Brent Nickel

QAS #: 50823006
DATE SAMPLED: 8-23-95
SAMPLE IDENTIFICATION: Soil - #1

DATE RECEIVED: 8-23-95
SAMPLED BY: Mick Cossairt

PCBS - SW-846-8080

PARAMETER	DET. LIMIT (ug/Kg)	CONC. (ug/Kg)
PCB-1016	50	ND
PCB-1221	50	ND
PCB-1232	50	ND
PCB-1242	50	ND
PCB-1248	50	ND
PCB-1254	50	ND
PCB-1260	50	ND

ND = NOT DETECTED

Norman L. Cunningham

Quality Analytical Services

1633 S. Marsh • Box 266426 • Kansas City, MO 64126 • (816) 254-5257

SERVICE TO: Industrial Service Corporation
1633 South Marsh
Kansas City, MO 64126

REPORT #: 50823006-5

DATE: 10-17-95

ATTN: Brent Nickel

QAS #: 50823006
DATE SAMPLED: 8-23-95
SAMPLE IDENTIFICATION: Soil - #1

DATE RECEIVED: 8-23-95
SAMPLED BY: Mick Cossairt

PARAMETER	METHOD	DET. LIMIT	CONC.
Extractable Petroleum Products	OA-2	3 mg/Kg	ND

ND = NOT DETECTED
NA = NOT APPLICABLE

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Quality Analytical Services

1633 S. Marsh • Box 266426 • Kansas City, MO 64126 • (816) 254-5257

SERVICE TO: Industrial Service Corporation
: 1633 South Marsh
: Kansas City, MO 64126
:

REPORT #: 50823007-1

DATE: 10-17-95

ATTN: Brent Nickel

QAS #: 50823007
DATE SAMPLED: 8-23-95
SAMPLE IDENTIFICATION: Soil - #2

DATE RECEIVED: 8-23-95
SAMPLED BY: Mick Cossairt

PARAMETER	METHOD	DET. LIMIT (mg/L)	CONC. (mg/L)
TCLP - Metals	SW-1311		
Arsenic	SW-6010	0.1	: ND
Barium	SW-6010	0.04	: 1.66
Cadmium	SW-6010	0.005	: ND
Chromium	SW-6010	0.008	: ND
Lead	SW-6010	0.1	: ND
Mercury	SW-7470	0.0003	: ND
Selenium	SW-6010	0.1	: ND
Silver	SW-6010	0.05	: ND

ND = NOT DETECTED

Norman L. Cunningham

Quality Analytical Services

1633 S. Marsh • Box 266426 • Kansas City, MO 64126 • (816) 254-5257

SERVICE TO: Industrial Service Corporation
: 1633 South Marsh
: Kansas City, MO 64126
:

REPORT #: 50823007-2

DATE: 10-17-95

ATTN: Brent Nickel

QAS #: 50823007
DATE SAMPLED: 8-23-95
SAMPLE IDENTIFICATION: Soil - #2

DATE RECEIVED: 8-23-95
SAMPLED BY: Mick Cossairt

(TCLP) VOLATILE ORGANIC COMPOUNDS - SW-846-1311/8260

PARAMETER	DET. LIMIT (mg/L)	CONC. (mg/L)
Benzene	0.00313	ND
Carbon tetrachloride	0.00313	ND
Chlorobenzene	0.00313	ND
Chloroform	0.00313	ND
1,2-Dichloroethane	0.00313	ND
1,1-Dichloroethylene	0.00313	ND
Methyl ethyl ketone (2-Butanone)	0.0125	ND
Tetrachloroethylene	0.00313	ND
Trichloroethylene	0.00313	ND
Vinyl chloride	0.00125	ND

ND = NOT DETECTED

Norman L. Cunningham

Quality Analytical Services

1633 S. Marsh • Box 266426 • Kansas City, MO 64126 • (816) 254-5257

SERVICE TO: Industrial Service Corporation
: 1633 South Marsh
: Kansas City, MO 64126
:

REPORT #: 50823007-3

DATE: 10-17-95

ATTN: Brent Nickel

QAS #: 50823007
DATE SAMPLED: 8-23-95
SAMPLE IDENTIFICATION: Soil - #2

DATE RECEIVED: 8-23-95
SAMPLED BY: Mick Cossairt

(TCLP) SEMI-VOLATILE ORGANIC COMPOUNDS - SW-846-1311/8270

PARAMETER	DET. LIMIT (mg/L)	CONC. (mg/L)
o-Cresol (2-Methylphenol)	0.025	ND
m-Cresol (3-Methylphenol)	0.025	ND
p-Cresol (4-Methylphenol)	0.025	ND
Cresol (Total)	0.025	ND
1,4-Dichlorobenzene	0.025	ND
2,4-Dinitrotoluene	0.025	ND
Hexachlorobenzene	0.025	ND
Hexachloro-1,3-butadiene	0.025	ND
Hexachloroethane	0.025	ND
Nitrobenzene	0.025	ND
Pentachlorophenol	0.125	ND
Pyridine	5.00	ND
2,4,5-Trichlorophenol	0.025	ND
2,4,6-Trichlorophenol	0.025	ND

ND = NOT DETECTED

Norman L. Cunningham

Quality Analytical Services

1633 S. Marsh • Box 266426 • Kansas City, MO 64126 • (816) 254-5257

SERVICE TO: Industrial Service Corporation
: 1633 South Marsh
: Kansas City, MO 64126
:

REPORT #: 50823007-4

DATE: 10-17-95

ATTN: Brent Nickel

QAS #: 50823007
DATE SAMPLED: 8-23-95
SAMPLE IDENTIFICATION: Soil - #2

DATE RECEIVED: 8-23-95
SAMPLED BY: Mick Cossairt

PCBS - SW-846-8080

PARAMETER	DET. LIMIT (ug/Kg)	CONC. (ug/Kg)
PCB-1016	50	ND
PCB-1221	50	ND
PCB-1232	50	ND
PCB-1242	50	ND
PCB-1248	50	ND
PCB-1254	50	ND
PCB-1260	50	ND

ND = NOT DETECTED

Norman L. Cunningham

Quality Analytical Services

1633 S. Marsh • Box 266426 • Kansas City, MO 64126 • (816) 254-5257

SERVICE TO: Industrial Service Corporation
1633 South Marsh
Kansas City, MO 64126

REPORT #: 50823007-5

DATE: 10-17-95

ATTN: Brent Nickel

QAS #: 50823007
DATE SAMPLED: 8-23-95
SAMPLE IDENTIFICATION: Soil - #2

DATE RECEIVED: 8-23-95
SAMPLED BY: Mick Cossairt

PARAMETER	METHOD	DET. LIMIT	CONC.
Extractable Petroleum Products	OA-2	3 mg/Kg	ND

ND = NOT DETECTED
NA = NOT APPLICABLE

Norman L. Cunningham

Quality Analytical Services

1633 S. Marsh • Box 266426 • Kansas City, MO 64126 • (816) 254-5257

SERVICE TO: Industrial Service Corporation
: 1633 South Marsh
: Kansas City, MO 64126
:

REPORT #: 50823008-1

DATE: 10-17-95

ATTN: Brent Nickel

QAS #: 50823008
DATE SAMPLED: 8-23-95
SAMPLE IDENTIFICATION: Soil - #3

DATE RECEIVED: 8-23-95
SAMPLED BY: Mick Cossairt

PARAMETER	METHOD	DET. LIMIT (mg/L)	CONC. (mg/L)
TCLP - Metals	SW-1311		
Arsenic	SW-6010	0.1	: ND
Barium	SW-6010	0.04	: 1.29
Cadmium	SW-6010	0.005	: 0.0084
Chromium	SW-6010	0.008	: ND
Lead	SW-6010	0.1	: ND
Mercury	SW-7470	0.0003	: ND
Selenium	SW-6010	0.1	: ND
Silver	SW-6010	0.05	: 0.0577

:

ND = NOT DETECTED

Norman L. Cunningham

Quality Analytical Services

1633 S. Marsh • Box 266426 • Kansas City, MO 64126 • (816) 254-5257

SERVICE TO: Industrial Service Corporation
: 1633 South Marsh
: Kansas City, MO 64126
:

REPORT #: 50823008-2

DATE: 10-17-95

ATTN: Brent Nickel

QAS #: 50823008
DATE SAMPLED: 8-23-95
SAMPLE IDENTIFICATION: Soil - #3

DATE RECEIVED: 8-23-95
SAMPLED BY: Mick Cossairt

(TCLP) VOLATILE ORGANIC COMPOUNDS - SW-846-1311/8260

PARAMETER	DET. LIMIT (mg/L)	CONC. (mg/L)
Benzene	0.00313	ND
Carbon tetrachloride	0.00313	ND
Chlorobenzene	0.00313	ND
Chloroform	0.00313	ND
1,2-Dichloroethane	0.00313	ND
1,1-Dichloroethylene	0.00313	ND
Methyl ethyl ketone (2-Butanone)	0.0125	ND
Tetrachloroethylene	0.00313	ND
Trichloroethylene	0.00313	ND
Vinyl chloride	0.00125	ND

ND = NOT DETECTED

Norman L. Cunningham

Quality Analytical Services

1633 S. Marsh • Box 266426 • Kansas City, MO 64126 • (816) 254-5257

SERVICE TO: Industrial Service Corporation
: 1633 South Marsh
: Kansas City, MO 64126
:

REPORT #: 50823008-3

DATE: 10-17-95

ATTN: Brent Nickel

QAS #: 50823008
DATE SAMPLED: 8-23-95
SAMPLE IDENTIFICATION: Soil - #3

DATE RECEIVED: 8-23-95
SAMPLED BY: Mick Cossairt

(TCLP) SEMI-VOLATILE ORGANIC COMPOUNDS - SW-846-1311/8270

PARAMETER	DET. LIMIT (mg/L)	CONC. (mg/L)
o-Cresol (2-Methylphenol)	0.025	ND
m-Cresol (3-Methylphenol)	0.025	ND
p-Cresol (4-Methylphenol)	0.025	ND
Cresol (Total)	0.025	ND
1,4-Dichlorobenzene	0.025	ND
2,4-Dinitrotoluene	0.025	ND
Hexachlorobenzene	0.025	ND
Hexachloro-1,3-butadiene	0.025	ND
Hexachloroethane	0.025	ND
Nitrobenzene	0.025	ND
Pentachlorophenol	0.125	ND
Pyridine	5.00	ND
2,4,5-Trichlorophenol	0.025	ND
2,4,6-Trichlorophenol	0.025	ND

ND = NOT DETECTED

Norman L. Cunningham

Quality Analytical Services

1633 S. Marsh • Box 266426 • Kansas City, MO 64126 • (816) 254-5257

SERVICE TO: Industrial Service Corporation
: 1633 South Marsh
: Kansas City, MO 64126
:

REPORT #: 50823008-4

DATE: 10-17-95

ATTN: Brent Nickel

QAS #: 50823008
DATE SAMPLED: 8-23-95
SAMPLE IDENTIFICATION: Soil - #3

DATE RECEIVED: 8-23-95
SAMPLED BY: Mick Cossairt

PCBS - SW-846-8080

PARAMETER	DET. LIMIT (ug/Kg)	CONC. (ug/Kg)
PCB-1016	50	ND
PCB-1221	50	ND
PCB-1232	50	ND
PCB-1242	50	ND
PCB-1248	50	ND
PCB-1254	50	ND
PCB-1260	50	ND

ND = NOT DETECTED

Norman L. Cunningham

Quality Analytical Services

1633 S. Marsh • Box 266426 • Kansas City, MO 64126 • (816) 254-5257

SERVICE TO: Industrial Service Corporation
: 1633 South Marsh
: Kansas City, MO 64126
:

REPORT #: 50823008-5

DATE: 10-17-95

ATTN: Brent Nickel

QAS #: 50823008
DATE SAMPLED: 8-23-95
SAMPLE IDENTIFICATION: Soil - #3

DATE RECEIVED: 8-23-95
SAMPLED BY: Mick Cousairt

PARAMETER	METHOD	DET. LIMIT	CONC.
Extractable Petroleum Products	OA-2	3 mg/Kg	ND

ND = NOT DETECTED
NA = NOT APPLICABLE

Norman L. Cunningham

Quality Analytical Services

1633 S. Marsh • Box 266426 • Kansas City, MO 64126 • (816) 254-5257

SERVICE TO: Industrial Service Corporation
: 1633 South Marsh
: Kansas City, MO 64126
:

REPORT #: 50823009-1

DATE: 10-17-95

ATTN: Brent Nickel

QAS #: 50823009
DATE SAMPLED: 8-23-95
SAMPLE IDENTIFICATION: Soil - #4

DATE RECEIVED: 8-23-95
SAMPLED BY: Mick Cossairt

PARAMETER	METHOD	DET. LIMIT (mg/L)	CONC. (mg/L)
TCLP - Metals	SW-1311		
Arsenic	SW-6010	0.1	: ND
Barium	SW-6010	0.04	: 1.74
Cadmium	SW-6010	0.005	: ND
Chromium	SW-6010	0.008	: ND
Lead	SW-6010	0.1	: ND
Mercury	SW-7470	0.0003	: ND
Selenium	SW-6010	0.1	: ND
Silver	SW-6010	0.05	: 0.0589

:

ND = NOT DETECTED

Norman L. Cunningham

Quality Analytical Services

1633 S. Marsh • Box 266426 • Kansas City, MO 64126 • (816) 254-5257

SERVICE TO: Industrial Service Corporation
: 1633 South Marsh
: Kansas City, MO 64126
:

REPORT #: 50823009-2

DATE: 10-17-95

ATTN: Brent Nickel

QAS #: 50823009
DATE SAMPLED: 8-23-95
SAMPLE IDENTIFICATION: Soil - #4

DATE RECEIVED: 8-23-95
SAMPLED BY: Mick Cossairt

(TCLP) VOLATILE ORGANIC COMPOUNDS - SW-846-1311/8260

PARAMETER	DET. LIMIT (mg/L)	CONC. (mg/L)
Benzene	0.00313	ND
Carbon tetrachloride	0.00313	ND
Chlorobenzene	0.00313	ND
Chloroform	0.00313	ND
1,2-Dichloroethane	0.00313	ND
1,1-Dichloroethylene	0.00313	ND
Methyl ethyl ketone (2-Butanone)	0.0125	ND
Tetrachloroethylene	0.00313	ND
Trichloroethylene	0.00313	ND
Vinyl chloride	0.00125	ND

ND = NOT DETECTED

Norman L. Cunningham

Quality Analytical Services

1633 S. Marsh • Box 266426 • Kansas City, MO 64126 • (816) 2[illegible]5257

SERVICE TO: Industrial Service Corporation
: 1633 South Marsh
: Kansas City, MO 64126
:

REPORT # 50823009-3

DATE: 1[illegible]17-95

ATTN: Brent Nickel

QAS #: 50823009
DATE SAMPLED: 8-23-95
SAMPLE IDENTIFICATION: Soil - #4

DATE RECEIVED: 8-23-95
SAMPLED BY: Mick Cossairt

(TCLP) SEMI-VOLATILE ORGANIC COMPOUNDS - SW-846 8311/8270

PARAMETER	DET. LIMIT (mg/L)	CONC. (mg/L)
o-Cresol (2-Methylphenol)	0.025	ND
m-Cresol (3-Methylphenol)	0.025	ND
p-Cresol (4-Methylphenol)	0.025	ND
Cresol (Total)	0.025	ND
1,4-Dichlorobenzene	0.025	ND
2,4-Dinitrotoluene	0.025	ND
Hexachlorobenzene	0.025	ND
Hexachloro-1,3-butadiene	0.025	ND
Hexachloroethane	0.025	ND
Nitrobenzene	0.025	ND
Pentachlorophenol	0.125	ND
Pyridine	5.00	ND
2,4,5-Trichlorophenol	0.025	ND
2,4,6-Trichlorophenol	0.025	ND

ND = NOT DETECTED

Norman L. Cunningham

Quality Analytical Services

1633 S. Marsh • Box 266426 • Kansas City, MO 64126 • (816) 254-5257

SERVICE TO: Industrial Service Corporation
: 1633 South Marsh
: Kansas City, MO 64126
:

REPORT #: 50823009-4

DATE: 10-17-95

ATTN: Brent Nickel

QAS #: 50823009
DATE SAMPLED: 8-23-95
SAMPLE IDENTIFICATION: Soil - #4

DATE RECEIVED: 8-23-95
SAMPLED BY: Mick Cossairt

PCBS - SW-846-8080

PARAMETER	DET. LIMIT (ug/Kg)	CONC. (ug/Kg)
PCB-1016	50	ND
PCB-1221	50	ND
PCB-1232	50	ND
PCB-1242	50	ND
PCB-1248	50	ND
PCB-1254	50	ND
PCB-1260	50	ND

ND = NOT DETECTED

Norman L. Cunningham

Quality Analytical Services

1633 S. Marsh • Box 266426 • Kansas City, MO 64126 • (816) 254-5257

SERVICE TO: Industrial Service Corporation
1633 South Marsh
Kansas City, MO 64126

REPORT #: 50823009-5

DATE: 10-17-95

ATTN: Brent Nickel

QAS #: 50823009
DATE SAMPLED: 8-23-95
SAMPLE IDENTIFICATION: Soil - #4

DATE RECEIVED: 8-23-95
SAMPLED BY: Mick Cossairt

PARAMETER	METHOD	DET. LIMIT	CONC.
Extractable Petroleum Products	OA-2	3 mg/Kg	ND

ND = NOT DETECTED
NA = NOT APPLICABLE

Norman L. Cunningham

Quality Analytical Services

1633 S. Marsh • Box 266426 • Kansas City, MO 64126 • (816) 254-5257

SERVICE TO: Industrial Service Corporation
: 1633 South Marsh
: Kansas City, MO 64126
:

REPORT #: 50823010-1

DATE: 10-17-95

ATTN: Brent Nickel

QAS #: 50823010
DATE SAMPLED: 8-23-95
SAMPLE IDENTIFICATION: Soil - #5

DATE RECEIVED: 8-23-95
SAMPLED BY: Mick Cossairt

PARAMETER	METHOD	DET. LIMIT (mg/L)	CONC. (mg/L)
TCLP - Metals	SW-1311		
Arsenic	SW-6010	0.1	: ND
Barium	SW-6010	0.04	: 1.81
Cadmium	SW-6010	0.005	: ND
Chromium	SW-6010	0.008	: ND
Lead	SW-6010	0.1	: ND
Mercury	SW-7470	0.0003	: ND
Selenium	SW-6010	0.1	: ND
Silver	SW-6010	0.05	: 0.0610

ND = NOT DETECTED

Norman L. Cunningham

Quality Analytical Services

1633 S. Marsh • Box 266426 • Kansas City, MO 64126 • (816) 254-5257

SERVICE TO: Industrial Service Corporation
: 1633 South Marsh
: Kansas City, MO 64126
:

REPORT #: 50823010-2

DATE: 10-17-95

ATTN: Brent Nickel

QAS #: 50823010
DATE SAMPLED: 8-23-95
SAMPLE IDENTIFICATION: Soil - #5

DATE RECEIVED: 8-23-95
SAMPLED BY: Mick Cossairt

(TCLP) VOLATILE ORGANIC COMPOUNDS - SW-846-1311/8260

PARAMETER	DET. LIMIT (mg/L)	CONC. (mg/L)
Benzene	0.00313	ND
Carbon tetrachloride	0.00313	ND
Chlorobenzene	0.00313	ND
Chloroform	0.00313	ND
1,2-Dichloroethane	0.00313	ND
1,1-Dichloroethylene	0.00313	ND
Methyl ethyl ketone (2-Butanone)	0.0125	ND
Tetrachloroethylene	0.00313	ND
Trichloroethylene	0.00313	ND
Vinyl chloride	0.00125	ND

ND = NOT DETECTED

Norman L. Cunningham

Quality Analytical Services

1633 S. Marsh • Box 266426 • Kansas City, MO 64126 • (816) 254-5257

SERVICE TO: Industrial Service Corporation
: 1633 South Marsh
: Kansas City, MO 64126
:

REPORT #: 50823010-3

DATE: 10-17-95

ATTN: Brent Nickel

QAS #: 50823010
DATE SAMPLED: 8-23-95
SAMPLE IDENTIFICATION: Soil - #5

DATE RECEIVED: 8-23-95
SAMPLED BY: Mick Cossairt

(TCLP) SEMI-VOLATILE ORGANIC COMPOUNDS - SW-846-1311/8270

PARAMETER	DET. LIMIT (mg/L)	CONC. (mg/L)
o-Cresol (2-Methylphenol)	0.025	ND
m-Cresol (3-Methylphenol)	0.025	ND
p-Cresol (4-Methylphenol)	0.025	ND
Cresol (Total)	0.025	ND
1,4-Dichlorobenzene	0.025	ND
2,4-Dinitrotoluene	0.025	ND
Hexachlorobenzene	0.025	ND
Hexachloro-1,3-butadiene	0.025	ND
Hexachloroethane	0.025	ND
Nitrobenzene	0.025	ND
Pentachlorophenol	0.125	ND
Pyridine	5.00	ND
2,4,5-Trichlorophenol	0.025	ND
2,4,6-Trichlorophenol	0.025	ND

ND = NOT DETECTED

Norman L. Cunningham

Quality Analytical Services

1633 S. Marsh • Box 266426 • Kansas City, MO 64126 • (816) 254-5257

SERVICE TO: Industrial Service Corporation
: 1633 South Marsh
: Kansas City, MO 64126
:

REPORT #: 50823010-4

DATE: 10-17-95

ATTN: Brent Nickel

QAS #: 50823010
DATE SAMPLED: 8-23-95
SAMPLE IDENTIFICATION: Soil - #5

DATE RECEIVED: 8-23-95
SAMPLED BY: Mick Cossairt

PCBS - SW-846-8080

PARAMETER	DET. LIMIT (ug/Kg)	CONC. (ug/Kg)
PCB-1016	50	ND
PCB-1221	50	ND
PCB-1232	50	ND
PCB-1242	50	ND
PCB-1248	50	ND
PCB-1254	50	ND
PCB-1260	50	ND

ND = NOT DETECTED

Norman L. Cunningham

Quality Analytical Services

1633 S. Marsh • Box 266426 • Kansas City, MO 64126 • (816) 254-5257

SERVICE TO: Industrial Service Corporation
1633 South Marsh
Kansas City, MO 64126

REPORT #: 50823010-5

DATE: 10-17-95

ATTN: Brent Nickel

QAS #: 50823010
DATE SAMPLED: 8-23-95
SAMPLE IDENTIFICATION: Soil - #5

DATE RECEIVED: 8-23-95
SAMPLED BY: Mick Cossairt

PARAMETER	METHOD	DET. LIMIT	CONC.
Extractable Petroleum Products	OA-2	3 mg/Kg	ND

ND = NOT DETECTED
NA = NOT APPLICABLE

Norman L. Cunningham

Quality Analytical Services

1633 S. Marsh • Box 266426 • Kansas City, MO 64126 • (816) 254-5257

SERVICE TO: Industrial Service Corporation
: 1633 South Marsh
: Kansas City, MO 64126
:

REPORT #: 50823011-1

DATE: 10-17-95

ATTN: Brent Nickel

QAS #: 50823011
DATE SAMPLED: 8-23-95
SAMPLE IDENTIFICATION: Soil - #6

DATE RECEIVED: 8-23-95
SAMPLED BY: Mick Cossairt

PARAMETER	METHOD	DET. LIMIT (mg/L)	CONC. (mg/L)
TCLP - Metals	SW-1311		
Arsenic	SW-6010	0.1	: ND
Barium	SW-6010	0.04	: 1.54
Cadmium	SW-6010	0.005	: ND
Chromium	SW-6010	0.008	: ND
Lead	SW-6010	0.1	: ND
Mercury	SW-7470	0.0003	: ND
Selenium	SW-6010	0.1	: ND
Silver	SW-6010	0.05	: 0.0625

ND = NOT DETECTED

Norman L. Cunningham

Quality Analytical Services

1633 S. Marsh • Box 266426 • Kansas City, MO 64126 • (816) 254-5257

SERVICE TO: Industrial Service Corporation
: 1633 South Marsh
: Kansas City, MO 64126
:

REPORT #: 50823011-2

DATE: 10-17-95

ATTN: Brent Nickel

QAS #: 50823011
DATE SAMPLED: 8-23-95
SAMPLE IDENTIFICATION: Soil - #6

DATE RECEIVED: 8-23-95
SAMPLED BY: Mick Cossairt

(TCLP) VOLATILE ORGANIC COMPOUNDS - SW-846-1311/8260

PARAMETER	DET. LIMIT (mg/L)	CONC. (mg/L)
Benzene	0.00313	ND
Carbon tetrachloride	0.00313	ND
Chlorobenzene	0.00313	ND
Chloroform	0.00313	ND
1,2-Dichloroethane	0.00313	ND
1,1-Dichloroethylene	0.00313	ND
Methyl ethyl ketone (2-Butanone)	0.0125	ND
Tetrachloroethylene	0.00313	ND
Trichloroethylene	0.00313	ND
Vinyl chloride	0.00125	ND

ND = NOT DETECTED

Norman L. Cunningham

Quality Analytical Services

1633 S. Marsh • Box 266426 • Kansas City, MO 64126 • (816) 254-5257

SERVICE TO: Industrial Service Corporation
: 1633 South Marsh
: Kansas City, MO 64126
:

REPORT #: 50823011-3

DATE: 10-17-95

ATTN: Brent Nickel

QAS #: 50823011
DATE SAMPLED: 8-23-95
SAMPLE IDENTIFICATION: Soil - #6

DATE RECEIVED: 8-23-95
SAMPLED BY: Mick Cossairt

(TCLP) SEMI-VOLATILE ORGANIC COMPOUNDS - SW-846-1311/8270

PARAMETER	DET. LIMIT (mg/L)	CONC. (mg/L)
o-Cresol (2-Methylphenol)	0.025	ND
m-Cresol (3-Methylphenol)	0.025	ND
p-Cresol (4-Methylphenol)	0.025	ND
Cresol (Total)	0.025	ND
1,4-Dichlorobenzene	0.025	ND
2,4-Dinitrotoluene	0.025	ND
Hexachlorobenzene	0.025	ND
Hexachloro-1,3-butadiene	0.025	ND
Hexachloroethane	0.025	ND
Nitrobenzene	0.025	ND
Pentachlorophenol	0.125	ND
Pyridine	5.00	ND
2,4,5-Trichlorophenol	0.025	ND
2,4,6-Trichlorophenol	0.025	ND

ND = NOT DETECTED

Norman L. Cunningham

Quality Analytical Services

1633 S. Marsh • Box 266426 • Kansas City, MO 64126 • (816) 254-5257

SERVICE TO: Industrial Service Corporation
: 1633 South Marsh
: Kansas City, MO 64126
:

REPORT #: 50823011-4

DATE: 10-17-95

ATTN: Brent Nickel

QAS #: 50823011
DATE SAMPLED: 8-23-95
SAMPLE IDENTIFICATION: Soil - #6

DATE RECEIVED: 8-23-95
SAMPLED BY: Mick Cossairt

PCBS - SW-846-8080

PARAMETER	DET. LIMIT (ug/Kg)	CONC. (ug/Kg)
PCB-1016	50	ND
PCB-1221	50	ND
PCB-1232	50	ND
PCB-1242	50	ND
PCB-1248	50	ND
PCB-1254	50	ND
PCB-1260	50	ND

ND = NOT DETECTED

Norman L. Cunningham

Quality Analytical Services

1633 S. Marsh • Box 266426 • Kansas City, MO 64126 • (816) 254-5257

SERVICE TO: Industrial Service Corporation
1633 South Marsh
Kansas City, MO 64126

REPORT #: 50823011-5

DATE: 10-17-95

ATTN: Brent Nickel

QAS #: 50823011
DATE SAMPLED: 8-23-95
SAMPLE IDENTIFICATION: Soil - #6

DATE RECEIVED: 8-23-95
SAMPLED BY: Mick Cossairt

PARAMETER	METHOD	DET. LIMIT	CONC.
Extractable Petroleum Products	OA-2	3 mg/Kg	ND

ND = NOT DETECTED
NA = NOT APPLICABLE

Norman L. Cunningham

FACSIMILE COVER PAGE

Deffenbaugh Industries, Inc.
P.O. Box 3220
Shawnee, KS 66203

(913) 631-3300
FAX 631-3996

Date: 11/13/95

To: Inna Pcilutsky FAX #: 492-0142
SCED

From: Sean White
Internet E-mail: swhite@fileshop.com

Total Pages: 2
(Including cover page)

If all pages are not received, call (913) 631-3300 ext. 130

Message:

Inna,

You were correct – it appears that I have fallen victim to the shenanigans of an office prankster. As we discussed, find attached a corrected signature page.

Sean

APPENDIX 6

Waste Water Analytical Data

Quality Analytical Services

1633 S. Marsh • Box 266426 • Kansas City, MO 64126 • (816) 254-5257

SERVICE TO: Industrial Service Corporation
: 1633 South Marsh
: Kansas City, MO 64126
:

REPORT #: 50823005-1

DATE: 10-17-95

ATTN: Brent Nickel

QAS #: 50823005
DATE SAMPLED: 8-23-95
SAMPLE IDENTIFICATION: Water - Decon Water

DATE RECEIVED: 8-23-95
SAMPLED BY: Mick Cossairt

PARAMETER	METHOD	DET. LIMIT (mg/L)	CONC. (mg/L)
TCLP - Metals	SW-1311		
Arsenic	SW-6010	0.1	: ND
Barium	SW-6010	0.04	: 0.0838
Cadmium	SW-6010	0.005	: ND
Chromium	SW-6010	0.008	: ND
Lead	SW-6010	0.1	: ND
Mercury	SW-7470	0.0003	: ND
Selenium	SW-6010	0.1	: ND
Silver	SW-6010	0.05	: ND

:

ND = NOT DETECTED

Norman L. Cunningham

Quality Analytical Services

1633 S. Marsh • Box 266426 • Kansas City, MO 64126 • (816) 254-5257

SERVICE TO: Industrial Service Corporation
: 1633 South Marsh
: Kansas City, MO 64126
:

REPORT #: 50823005-2

DATE: 10-17-95

ATTN: Brent Nickel

QAS #: 50823005
DATE SAMPLED: 8-23-95
SAMPLE IDENTIFICATION: Water - Decon Water

DATE RECEIVED: 8-23-95
SAMPLED BY: Mick Cossairt

(TCLP) VOLATILE ORGANIC COMPOUNDS - SW-846-1311/8260

PARAMETER	DET. LIMIT (mg/L)	CONC. (mg/L)
Benzene	0.005	ND
Carbon tetrachloride	0.005	ND
Chlorobenzene	0.005	ND
Chloroform	0.005	ND
1,2-Dichloroethane	0.005	ND
1,1-Dichloroethylene	0.005	ND
Methyl ethyl ketone (2-Butanone)	0.02	ND
Tetrachloroethylene	0.005	ND
Trichloroethylene	0.005	ND
Vinyl chloride	0.002	ND

= NOT DETECTED

Norman L. Cunningham

Quality Analytical Services

1633 S. Marsh • Box 266426 • Kansas City, MO 64126 • (816) 254-5257

SERVICE TO: Industrial Service Corporation
: 1633 South Marsh
: Kansas City, MO 64126
:

REPORT #: 50823005-3

DATE: 10-17-95

ATTN: Brent Nickel

QAS #: 50823005
DATE SAMPLED: 8-23-95
SAMPLE IDENTIFICATION: Water - Decon Water

DATE RECEIVED: 8-23-95
SAMPLED BY: Mick Cossairt

(TCLP) SEMI-VOLATILE ORGANIC COMPOUNDS - SW-846-1311/8270

PARAMETER	DET. LIMIT (mg/L)	CONC. (mg/L)
o-Cresol (2-Methylphenol)	0.02	ND
m-Cresol (3-Methylphenol)	0.02	ND
p-Cresol (4-Methylphenol)	0.02	ND
Cresol (Total)	0.02	ND
1,4-Dichlorobenzene	0.02	ND
2,4-Dinitrotoluene	0.02	ND
Hexachlorobenzene	0.02	ND
Hexachloro-1,3-butadiene	0.02	ND
Hexachloroethane	0.02	ND
Nitrobenzene	0.02	ND
Pentachlorophenol	0.10	ND
Pyridine	4.00	ND
2,4,5-Trichlorophenol	0.02	ND
2,4,6-Trichlorophenol	0.02	ND

ND = NOT DETECTED

Norman L. Cunningham

Quality Analytical Services

1633 S. Marsh • Box 266426 • Kansas City, MO 64126 • (816) 254-5257

SERVICE TO: Industrial Service Corporation
: 1633 South Marsh
: Kansas City, MO 64126
:

REPORT #: 50823005-4

DATE: 10-17-95

ATTN: Brent Nickel

QAS #: 50823005
DATE SAMPLED: 8-23-95
SAMPLE IDENTIFICATION: Water - Decon Water

DATE RECEIVED: 8-23-95
SAMPLED BY: Mick Cossairt

PCBS - EPA 608

PARAMETER	DET. LIMIT (ug/L)	CONC. (ug/L)
PCB-1016	2.0	ND
PCB-1221	2.0	ND
PCB-1232	2.0	ND
PCB-1242	2.0	ND
PCB-1248	2.0	ND
PCB-1254	2.0	ND
PCB-1260	2.0	ND

ND = NOT DETECTED

Norman L. Cunningham

Quality Analytical Services

1633 S. Marsh • Box 266426 • Kansas City, MO 64126 • (816) 254-5257

SERVICE TO: Industrial Service Corporation
: 1633 South Marsh
: Kansas City, MO 64126
:

REPORT #: 50823004-1

DATE: 10-17-95

ATTN: Brent Nickel

QAS #: 50823004
DATE SAMPLED: 8-23-95
SAMPLE IDENTIFICATION: Water - Development Water

DATE RECEIVED: 8-23-95
SAMPLED BY: Mick Cossairt

PARAMETER	METHOD	DET. LIMIT (mg/L)	CONC. (mg/L)
TCLP - Metals	SW-1311		
Arsenic	SW-6010	0.1	: ND
Barium	SW-6010	0.04	: 0.340
Cadmium	SW-6010	0.005	: ND
Chromium	SW-6010	0.008	: ND
Lead	SW-6010	0.1	: ND
Mercury	SW-7470	0.0003	: ND
Selenium	SW-6010	0.1	: ND
Silver	SW-6010	0.05	: ND

ND = NOT DETECTED

Norman L. Cunningham

Quality Analytical Services

1633 S. Marsh • Box 266426 • Kansas City, MO 64126 • (816) 254-5257

SERVICE TO: Industrial Service Corporation
: 1633 South Marsh
: Kansas City, MO 64126
:

REPORT #: 50823004-2

DATE: 10-17-95

ATTN: Brent Nickel

QAS #: 50823004
DATE SAMPLED: 8-23-95
SAMPLE IDENTIFICATION: Water - Development Water

DATE RECEIVED: 8-23-95
SAMPLED BY: Mick Cossairt

(TCLP) VOLATILE ORGANIC COMPOUNDS - SW-846-1311/8260

PARAMETER	DET. LIMIT (mg/L)	CONC. (mg/L)
Benzene	0.005	ND
Carbon tetrachloride	0.005	ND
Chlorobenzene	0.005	ND
Chloroform	0.005	ND
1,2-Dichloroethane	0.005	ND
1,1-Dichloroethylene	0.005	ND
Methyl ethyl ketone (2-Butanone)	0.02	ND
Tetrachloroethylene	0.005	ND
Trichloroethylene	0.005	ND
Vinyl chloride	0.002	ND

ND = NOT DETECTED

Norman L. Cunningham

Quality Analytical Services

1633 S. Marsh • Box 266426 • Kansas City, MO 64126 • (816) 254-5257

SERVICE TO: Industrial Service Corporation
: 1633 South Marsh
: Kansas City, MO 64126
:

REPORT #: 50823004-3

DATE: 10-17-95

ATTN: Brent Nickel

QAS #: 50823004
DATE SAMPLED: 8-23-95
SAMPLE IDENTIFICATION: Water - Development Water

DATE RECEIVED: 8-23-95
SAMPLED BY: Mick Cossairt

(TCLP) SEMI-VOLATILE ORGANIC COMPOUNDS - SW-846-1311/8270

PARAMETER	DET. LIMIT (mg/L)	CONC. (mg/L)
o-Cresol (2-Methylphenol)	0.02	ND
m-Cresol (3-Methylphenol)	0.02	ND
p-Cresol (4-Methylphenol)	0.02	ND
Cresol (Total)	0.02	ND
1,4-Dichlorobenzene	0.02	ND
2,4-Dinitrotoluene	0.02	ND
Hexachlorobenzene	0.02	ND
Hexachloro-1,3-butadiene	0.02	ND
Hexachloroethane	0.02	ND
Nitrobenzene	0.02	ND
Pentachlorophenol	0.10	ND
Pyridine	4.00	ND
2,4,5-Trichlorophenol	0.02	ND
2,4,6-Trichlorophenol	0.02	ND

ND = NOT DETECTED

Norman L. Cunningham

Quality Analytical Services

1633 S. Marsh • Box 266426 • Kansas City, MO 64126 • (816) 254-5257

SERVICE TO: Industrial Service Corporation
: 1633 South Marsh
: Kansas City, MO 64126
:

REPORT #: 50823004-4

DATE: 10-17-95

ATTN: Brent Nickel

QAS #: 50823004
DATE SAMPLED: 8-23-95
SAMPLE IDENTIFICATION: Water - Development Water

DATE RECEIVED: 8-23-95
SAMPLED BY: Mick Cossairt

PCBS - EPA 608

PARAMETER	DET. LIMIT (ug/L)	CONC. (ug/L)
PCB-1016	2.0	ND
PCB-1221	2.0	ND
PCB-1232	2.0	ND
PCB-1242	2.0	ND
PCB-1248	2.0	ND
PCB-1254	2.0	ND
PCB-1260	2.0	ND

ND = NOT DETECTED

Norman L. Cunningham